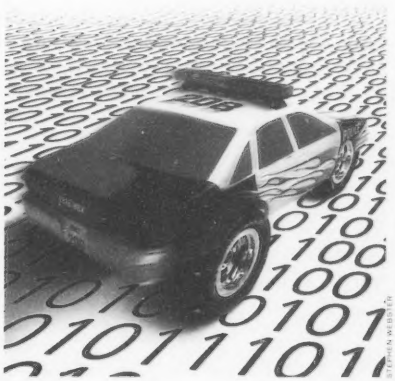
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- Court finds evidence is strong against former EDS execs. PAGE 7

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KNOWLEDGE CENTER NETWORKING



Souped-up Security

SPECIAL REPORT Looking to take network protection to the next level? Here's how to stave off attacks, manage security contractors and enforce security for telecommuters, who might be your network's weakest link. **Stories begin on page 35.**

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Ask the Experts: Questions about network security. QuickLink 43754
Quiz: How secure are your remote workers? QuickLink 43691
Shark Tank: Sharky's network security tales. QuickLink 43601

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NEWSPAPER

Sears Plans to Outsource Part of IT Infrastructure

Other major initiatives focus on point-of-sale systems and merchandising applications

BY CAROL SLIWA
NEW YORK

Sears, Roebuck and Co. in March plans to strike a deal to outsource a substantial portion of the technical infrastructure that its IT department currently maintains.

MORE ONLINE
Sears' CEO sings the praises of offshore outsourcing.
QuickLink 44157

The outsourcing decision is one of several key IT deals that the retailer plans to finalize early this year to help reduce costs, improve margins and drive up sales, CIO Gary Kelly disclosed at the National Retail Federation conference here last week.

Outsourcing a big chunk of the IT infrastructure — a decision that Kelly acknowledged is "huge" — will have an impact not only on technology but also on the Sears IT personnel who support it. Kelly said about 270 of the company's 1,160 IT staffers currently manage the systems that the company plans to outsource.

"We don't know how many of them will remain with Sears, how many will work with the new company. That's yet to be determined," Kelly said. "Usually, the company that acquires the contract to own and operate the infrastructure hires some portion of the people that do the work for the customer."

That's what happened at

Sears, page 14

Big Vendors Lead Leap to Linux

Users wary as IBM, Novell, Sun pursue use of OS on desktops

BY PATRICK THIBODEAU

Miami-Dade County's government operations have around 15,000 users, and the county's IT officials would love nothing more than to cut licensing costs by adopting a Linux desktop strategy.

"We're all looking for something that will work as well [as Windows] but doesn't cost as much," said Gary Gray, the Florida county's systems support manager. But Miami-Dade isn't ready to risk interoperability and productivity limitations by taking the desktop Linux leap. "We're going to let the big people try this out first," he said.

Some of the "big people" Gray will be watching are IBM and Novell Inc., which have acknowledged plans to adopt Linux on the desktop internally, and Sun Microsystems Inc., which has already done so.

IBM has confirmed the authenticity of a recently leaked memo written by CIO Bob Greenberg detailing interest in moving IBM's workforce to Linux-based desktops by the end of next year.

And Novell plans to move

Linux, page 16

MORE INSIDE

- **BEYOND LINUX:** IBM's desktop strategy focuses on portals. **Page 16**
- **LINUXWORLD PREVIEW:** Users are looking for new ways to leverage the open-source operating system. **Page 16**
- **OUR TAKE:** Linux will be the liveliest technology space to watch in 2004, says Maryfran Johnson. **Page 22**

Merrill Eyes Virtual SANs

IT managers seek more control of data

BY LUCAS MEARIAN

IT managers at Merrill Lynch & Co. are weighing a multimillion-dollar project to deploy intelligent switches that could virtualize the brokerage's storage-area networks and give its technology staffers central control of the data stored on the SANs.

Having completed the buildout of a second major data center last June, Merrill Lynch is now in the planning stages of the storage-consolidation move, said Mike Myrick, director of managed storage at the New York-based company. The project still needs to be approved by corporate executives, he added.

Merrill Lynch, page 57

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*Source: IDC, Worldwide Mobile Middleware Competitive Analysis, 2003: Forecast for 2003–2007, IDC #29580, Jul 2003.



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The CIO as Chief Communicator

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Storage Virtualization Gets Down to Business

Users like Tony Catone (left) of the Philadelphia Stock Exchange have learned that the unified view of storage resources provided by virtualization can reduce application downtime and save money. **Page 27**

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KNOWLEDGE CENTER NETWORKING

Souped-up Security

Traumatized by a year filled with malicious code outbreaks, network managers are eager to bolster security and offload some chores to managed security service providers. This special report will help you manage the contractors and close the security holes opened up by telecommuters.

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Ask the Experts. A panel of security professionals answers readers' questions on how to better defend their organizations against attack.
QuickLink 43754

Security Manager's Journal. A discussion of network security topics, including rogue access points and worms, from our security experts.
QuickLink a3960

The Future of Security Management. Expect network and systems management vendors to become the future purveyors of security services. Why? Because they have key advantages over security pure plays, says Ron Moritz, chief security strategist at Computer Associates.
QuickLink 43509

AT DEADLINE

NASA Makes CIO More Independent

NASA announced that it's creating an independent office of the CIO as part of an internal reorganization aimed at streamlining its administration. The space agency said the change gives Patricia Dunnington, who was named CIO last March, more responsibility for managing its IT investments. Previously, the CIO's responsibilities were limited to setting technology policies, NASA said.

Novell Indemnifies SUSE Linux Users

Novell Inc. completed its buyout of SUSE Linux AG and said it will indemnify SUSE's users against any damages resulting from The SCO Group Inc.'s anti-Linux campaign. To qualify, users must buy SUSE Linux Enterprise 8 along with a support contract and an "upgrade protection" maintenance plan, Novell said. Meanwhile, Open Source Development Labs Inc. in Beaverton, Ore., said it's setting up a $10 million defense fund for Linux users.

Sun Reports Loss, Small Drop in Sales

Sun Microsystems Inc. reported a net loss of $125 million for its second quarter, which ended Dec. 28. Revenue was $2.89 billion, down 1% year over year. Sun disclosed plans to cut 300 jobs by moving some manufacturing operations to a plant in Oregon. But CEO Scott McNealy said the company is "not changing our strategy in the go-to-market sense."

Short Takes

NOKIA CORP. said it will outsource its desktop systems and help desk operations to IBM in a five-year deal valued at about $250 million. . . . The U.S. Environmental Protection Agency awarded a nine-year, $700 million systems development contract to LOCKHEED MARTIN CORP.

PeopleSoft, User Group Continue Verbal Jousting

Quest details PeopleSoft's demands; vendor questions commitment claims

BY MARC L. SONGINI

THE DISPUTE between PeopleSoft Inc. and the Quest user group continued last week, as officials from the two sides fired more verbal shots at each other in the wake of the software vendor's decision to withdraw its support for several Quest conferences.

Quest, an independent group for users of J.D. Edwards & Co.'s applications, detailed a list of conditions that PeopleSoft had sought in return for its participation in a conference held last week in Chicago and others scheduled for this month and February. PeopleSoft acquired J.D. Edwards last summer.

The conditions included a demand that PeopleSoft be allowed to review messages from the user group to its members before they were distributed. Quest said PeopleSoft also wanted it to retract a claim that the company would support its worldwide user conference, absolve PeopleSoft of any legal or financial obligations related to existing commitments, and return customer marketing data that J.D. Edwards had shared with the user group. Quest's board of directors rejected all but the last of the conditions.

"As an independent user group, we believe it is necessary to maintain the right to communicate with members frequently and in an open, unedited manner," said Quest President Barbara Schmit in comments that were made at the Chicago conference and posted on the Lexington, Ky.-based user group's Web site.

MORE NEWS

PeopleSoft extends a refund offer to users to help fend off Oracle's hostile takeover bid:
QuickLink 44054
www.computerworld.com

Quest's board felt that commitments made by J.D. Edwards "should be followed through on" by PeopleSoft, added Schmit, who is CIO at Computer Network Technology Corp. in Minneapolis.

PeopleSoft spokesman Steve Swasey acknowledged that the company initially committed to support the Chicago show and three other Quest events. But, he added, Quest falsely claimed that PeopleSoft would support its global and regional conferences through 2006.

"We just did not want Quest to convey that PeopleSoft is obligated when it's not," Swasey said. "We want the message to be honest." As for the customer data, PeopleSoft wanted its use discontinued because the information is outdated, according to Swasey. "We told Quest on Dec. 15 [that] they had seven days to comply, and they didn't. At that point, we said, 'You don't have a relationship with us.' "

The rift between PeopleSoft and Quest became public two weeks ago [QuickLink 43921].

John Matelski, the city of Orlando's deputy CIO and a Quest board member, last week said that the user group "will continue to proactively try to re-establish a relationship with PeopleSoft. But until they're receptive to our overtures, there's not much that can be done."

The loss of PeopleSoft's support may have been unavoidable, said Mitch Myers, vice president of operations at F.W. Murphy Instrumentation & Control Solutions in Tulsa, Okla. "My guess is that PeopleSoft has their own user group model," he said. "They can't afford to add another."

Dave Hyzy, director of IT at Benderson Development Co. in Buffalo, N.Y., resigned from Quest's board last month over its dealings with PeopleSoft, after just 11 days as a member. Hyzy last week said the user group's directors seem more interested in preserving their positions "than in working with PeopleSoft to resolve this rift in the best interests of the members." **44113**

Dell Adds Gigabit Ethernet Devices to Switch Line

24-port switches can support up to 3,500 end users

BY MATT HAMBLEN

Dell Inc. today will announce two Gigabit Ethernet switches that are the highest-performing devices it has rolled out since entering the networking market in September 2001.

The 24-port PowerConnect 6024 and 6024F are designed to support network connections for up to 3,500 end users at small or midsize businesses, said Ulrich Hansen, a senior product manager at Dell. The switches can also be used to aggregate multiple switches or connect servers in large data centers, he added.

In addition to being Dell's largest switches, the new products are its first Layer 3 devices. Hansen said the switches will ship early next month at a list price of $3,499, which includes a three-year service contract, redundant power supplies and built-in management software.

Josh Vinyard, IT manager at Diab Inc., a maker of composite materials in DeSoto, Texas, has been testing the PowerConnect 6024 and plans to buy the switch to keep up with the escalating demands on his network. "Everything in manufacturing is coming online with networkable equipment," he said. "We're moving into a world where you have to think ahead, buy smart and pray your investment isn't obsolete in two years."

PRODUCT DETAILS

PowerConnect 6024 and 6024F

PORTS: 24 total – 16 for copper cables and 8 that support copper or fiber on the 6024; 16 for fiber and 8 with mixed capabilities on the 6024F

MAXIMUM SWITCHING CAPACITY: 48Gb/sec.

OTHER KEY FEATURES: Dual hot-swappable power supplies and cooling fans

Vinyard said the price of the switch is low enough that he had to call Dell officials to make sure it was right. He predicted that his costs might be thousands of dollars more to get similar hardware from other vendors once support costs and management software are included.

"If it weren't for Dell, there would be no way I could even think about growing our network to meet the needs of our user base," Vinyard said.

Dell is six to nine months behind the switching products road map it announced when it entered the market, said Mark Fabbi, an analyst at Gartner Inc. "Dell found networking is harder than they thought," Fabbi said. "They expected to sell more than they did and expected to move from Layer 2 to 3 more rapidly than they could."

But he added that, to Dell's credit, it also has taken more time on development than originally intended to bulk up its technical and support expertise. **44083**

District of Columbia Melds Budgeting for 68 Agencies

Software deal with Hyperion part of $71.5M IT revamp

BY DAN VERTON
WASHINGTON

The District of Columbia tomorrow will announce a plan to deploy an integrated suite of applications that for the first time will enable all 68 of its government agencies to conduct performance-based budgeting and to prove that forecast savings from IT upgrades have actually been realized.

The $6 million deal with Sunnyvale, Calif.-based Hyperion Solutions Corp., which includes three software modules, hardware and maintenance costs, is the city's latest move in a five-year, $71.5 million modernization program that promises to save the government more than $60 million annually. The district plans to complete the rollout of three Hyperion financial modules by September, in time for the start of its fiscal year.

The three modules cover budgeting, performance scorecarding and analysis, said Sandy Lazar, director of key systems for the district's chief technology officer.

"Today, it's a pretty onerous process involving spreadsheets and floppy disks," said Lazar. "With the budget module, all of the agencies will formulate their budgets online, automatically check account balances and conduct what-if analysis, and then submit their budgets to a central repository," he said. "For the first time, we'll be able to take a really strong look at performance across the city."

But getting to this point has been a long slog dating to 2001. That's when the groundwork — the plan and the estimates for the return on investment — was laid for what the city calls its Administrative Services Modernization Program (ASMP). The program is a massive ERP effort that by 2006 will have completely reinvented nearly every business process managed by every city agency — including procurement, human resources, payroll, time and labor, budget and planning, pension and benefits administration, and property management.



"[With the previous processes] you wonder how anything got done."

SANDY LAZAR, director of key systems, District of Columbia

Worst to First

But it's only now that the district has been able to take a serious look at deploying the next generation of business applications, said Suzanne Peck, the city's CTO.

"Five years ago, we were probably among the five worst municipal organizations in the nation in terms of IT infrastructure," she said. And that's not an exaggeration, considering that at that time the district's IT infrastructure amounted to 8,000 rotary telephones, no WAN to speak of, a Web site with a paltry 500 pages and an e-mail system that could handle no more than 200 messages per day.

The ASMP effort, said Peck, "started the inexorable journey from worst to first." Today, the district has 400 WAN locations, 30,000 Integrated Services Digital Network lines, a Web portal that boasts 200,000 pages and the foundation for an integrated ERP infrastructure that can handle real-time transactions.

Lessons Learned

But success has come with its share of lessons learned. "Don't start something of this magnitude without spectacular leadership," said Peck. In addition, "begin with benefits realization before you do any implementation of any kind," she said. "If you want money for an initiative, you have to show what you're going to get back from it." And with 3,500 metrics monitoring agency performance being integrated into the Hyperion scorecard module, city managers have a granular view of exactly how agencies are performing and what savings are being gained, she said.

"Middleware was also a great technology advance for us," added Peck. "This allowed us to take the very best software and make the very best competitive deals while having the advantages of tightly integrated software." **44120**

Capital Plan

Companies providing products and services for D.C.'s $71.5 million IT overhaul include the following:

INTEGRATORS

Accenture Ltd. HR

BearingPoint Inc. Budgeting and general ledger

Unisys Corp. Procurement

SOFTWARE VENDORS

Archibus Inc. Property management

Ariba Inc. Procurement

Hyperion Budget and planning

PeopleSoft Inc. HR, payroll, benefits and pension, time and labor

SeeBeyond Tschnology Corp. Enterprise application integration

PLATFORM VENDORS

IBM, Sun Microsystems Inc. AIX and Solaris for database and application servers

Microsoft Corp. Windows for Web servers

Shareholder Suit Against EDS Can Proceed, Court Rules

Former execs allegedly inflated earnings

BY DAN VERTON

A U.S. District Court in Texas last week denied a motion filed by Electronic Data Systems Corp. to dismiss a class-action shareholder lawsuit alleging that two former top executives knowingly misrepresented company earnings and the health of the multibillion-dollar Navy/Marine Corps Intranet contract.

In a 27-page ruling, District Judge Leonard Davis concluded that lawyers for the EDS shareholders presented "strong" evidence that former EDS Chairman and CEO Richard Brown and former Chief Financial Officer Jim Daley misrepresented earnings and facts related to the troubled N/MCI contract.

That, along with other factors, allowed the company's stock to be traded at falsely inflated prices, according to the plaintiffs.

"Having established that defendants knew of problems that existed on the N/MCI contract, the court concludes that plaintiffs have pled sufficient facts to show that defendants made misrepresentations or omissions to investors," wrote Davis. "The court also finds a strong inference that defendants were extremely reckless in continuing to recognize any revenue on the project when they were allegedly pursuing a tactic of intentionally providing goods that did not meet contract specifications."

The ruling isn't a finding of guilt, but rather a conclusion that the plaintiffs have a legitimate case to pursue.

Kevin Lightfoot, a spokesman for Plano, Texas-based EDS, said the company is "clearly disappointed with this, but not completely surprised by the judge's ruling." He said EDS "continues to believe that the allegations against it are without merit," adding that the company still plans to defend itself vigorously [QuickLink 42348].


FILED
JAN 13 2004
DAVID J. MALAND, CLERK
IN RE ELECTRONIC DATA SYSTEMS CORP. SECURITIES AND "ERISA" LITIGATION
CASE NO. 4:03-MD-1563
LEAD CASE 4:03-CV-110 ("SECURITIES")
PRACTICE AND PROCEDURE ORDER NO. 5 (SECURITIES LITIGATION)

The court ruled that EDS was "extremely reckless."

The shareholder complaint stems from a Sept. 18, 2002, EDS announcement that it expected its third-quarter 2002 earnings to fall short of the company's prior guidance by approximately 80%. A week later, securities analysts discovered that EDS hadn't disclosed certain financial obligations related to the sale of "put" contracts on its own stock, which would require the company to pay $225 million. As a result, the price of EDS's stock tumbled, and shareholders lost about $11.8 billion in value.

Last May, EDS reported a quarterly net loss of $126 million, blaming it on "problem contracts" and a whopping $334 million pretax loss stemming from difficulties with the N/MCI program [QuickLink 38372]. **44087**

BRIEFS

Microsoft Extends Win 98 Support . . .

Microsoft Corp. dropped a plan to end support for its Windows 98 operating systems as of last Friday and said it will continue to provide telephone help and security updates until June 30, 2006. The company said it made the extension in response to requests from users and to bring Windows 98 Second Edition in line with the seven-year support life-cycle policy it announced last October.

. . . And Updates Integration Tools

In other product news, Microsoft released an upgrade of Windows Services for Unix, a set of tools for integrating Unix and Windows systems. The company said Version 3.5 supports faster Network File System performance and can be downloaded at no cost. The software, which also can be used to move Unix applications to Windows machines, previously cost $99.

Oracle Splits CEO, Chairman Positions

Oracle Corp. said CEO Larry Ellison is handing over his position as chairman to Jeff Henley, who will give up his job as chief financial officer once a replacement is named. The change doesn't affect Ellison's management duties, Oracle said. It also gave president titles to Safra Catz, who runs global operations, and Charles Phillips, who heads sales, marketing and consulting.

HP Boosts Effort To Enforce Patents

Hewlett-Packard Co. said it plans to increase enforcement of its intellectual property rights, although the company doesn't plan to target technology users. HP has set up several licensing programs aimed at other vendors that allegedly make use of its patented technology in products.

MARK HALL ▪ ON THE MARK

Pricey Fibre Channel SANs Make No Sense . . .

. . . for medium-size or, certainly, small companies. But it's **not just because they need a "let's go to Mars" budget.** They're complex to deploy and maintain, requiring time and skills seldom available in anything but big IT operations. "The SAN industry has been very successful telling us a compelling story," observes Zophar Santé, vice president of market development at IP SAN provider SANRAD Inc. in Alameda, Calif. "But the industry hasn't said it's easy and cheap." That's forced most companies to stick with the inefficiencies of direct-attached storage or install pokey network-attached storage systems. These systems lag IP SANs in performance by 40%, claims Mark Woithe, director of storage marketing at Xiran, a division of SimpleTech Inc. in Santa Ana, Calif. Neither vendor pretends that IP SANs compete with Fibre Channel for speed. "A Fibre Channel SAN is reliable and has great performance," Santé admits. "But it's not about replacing IP SANs. It's about **delivering SANs to the masses.**" Both vendors will cater to the IT proletariat with new products. SANRAD this week begins shipping its V-Switch 2000, which can link up to 256 servers, sharing as many as 68,000 storage volumes. It's available now and goes for $12,500. And late next month, Xiran will ship its DPA 1400 card, which fits into a server's PCI slot. The card **virtualizes the direct-attached storage** so it can be shared in an IP SAN. The $750 card is packed with 250MB of memory and can be used as either a target or initiator in the IP SAN. ▪ The IT masses are certainly growing in numbers, especially overseas. And they're apparently **a tad rough on the storage systems.** That's what's behind the expansion of Armonk, N.Y.-based CBL Data Recovering Technologies Inc. into Brazil by the end of next quarter and into Russia by year's end. That will make nine countries plus the U.S. home to CBL's labs, where users can send their nonworking, unaccessible disk drives, optical devices, CD-ROMs and even floppies. "We don't do mainframes. But other than that, we can retrieve the data," says CEO Bill Margeson. CBL technicians detect the signal on a disk that determines a bit's 0 or 1 status, translate everything into hexidecimal code, re-create the file structure and data, and copy it all to a new, safe medium and return it to you. In more than a decade of doing this work, Margeson has noticed some trends. Every year, as a new generation of drives hits the streets, **"an Edsel or two will come out."** And this year? GMR drives, according to Margeson. Seems the "smart" technology inside the Giant Magneto-Resistance head devices occasionally gets corrupted, making the data stored on them impossible to read. Another pattern he's noticed: **65% of the failures are hardware-related, and 35% are people-related.** How so? "People don't know what to do when access to data is taken from them," Margeson says. **"They can't surrender."** What IT admins often do is to continue to work on the problem even after the disk drive starts clicking. "If you hear a 'click-click' sound, you might as well give up," he advises. If you send it to a CBL lab, techs will diagnose it for free, but the data on 15% of the media inspected can't be saved. If CBL can retrieve the data, it'll cost you $100 per hour. To fix a RAID system might set you back about $2,000, which will seem cheap when the data shows up on users' monitors once again. ▪ FileNet Corp. in Costa Mesa, Calif., and McLaren Software Ltd. in Glasgow, Scotland, tomorrow will announce plans to tightly integrate FileNet's P8 content management engine into McLaren's Enterprise Engineer for the process industry. FileNet said it will announce other software-integration deals for manufacturing and supply chain users in the coming months. The upgraded version of Enterprise Engineer will ship in Q4. ▪ If you're involved in linking your procurement specialists with **small manufacturers overseas that lack IT resources**, consider SteppingStones Version 1.3 from Tradestone Software Inc. in Gloucester, Mass. The upgrade, available Jan. 31, adds a logistics management feature as an online service to its current multilanguage software that handles sourcing issues from the request-for-quotes stage through customs and arrival in your warehouse. Its key feature, boasts CEO Sue Welch, is ease of use. It requires almost no training, so anyone can use it. **Even the masses.** **44088**

Snappy Security

SnapGear Inc. in West Jordan, Utah, this week ships its $399 Linux-powered PCI635 card, which is installed in a server or a PC and offloads intrusion-detection, firewall and VPN functions from the host CPU.

Security Flaws Put VoIP Systems at Risk

BY JAIKUMAR VIJAYAN

The disclosure last week of critical vulnerabilities in voice-over-IP products from several major vendors shows why companies need to pay close attention to security when deploying IP telephony technologies, analysts said.

The flaws were discovered by Britain's National Infrastructure Security Co-ordination Centre using a test suite designed by a group of researchers at the University of Oulu in Finland. The flaws exist in VoIP products that support the H.323 protocol, which is used to exchange audio and video communications.

Products sold by Microsoft Corp., Cisco Systems Inc. and Nortel Networks Ltd. are among the affected software, and the risks to users include denial-of-service attacks and malicious hackers taking control of systems, according to an advisory issued by Internet Security Systems Inc. (ISS).

Neel Mehta, a security researcher at Atlanta-based ISS, said the vulnerabilities are the result of coding errors in individual H.323 implementations. The flaws in Cisco's Internetworking Operating System (IOS) software present the biggest concern because of its widespread use in Internet routers, Mehta said.

In its own advisory, Cisco said all products that run IOS and support H.323 packet processing are affected by the flaws. Several other IP telephony products are at risk, even though they don't run IOS, the company added. Cisco released patches for all of the affected devices.

Microsoft warned users that the H.323 filter in its Internet Security and Acceleration Server 2000 software is vulnerable and gave the flaw a "critical" severity rating. Attackers could use the security hole to take complete control of compromised systems, said Microsoft, which also released software patches. **44126**



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German Retailer's RFID Effort Rivals Wal-Mart's

Metro Group asks suppliers to tag pallets and cases by Nov., tests item-level tagging

BY CAROL SLIWA
NEW YORK

WAL-MART STORES Inc. isn't the only major retailer to issue an RFID edict to its top suppliers.

Metro Group, a German retailer with more than 2,300 stores in 28 countries, announced here last week that it has asked its leading suppliers by November to start affixing radio frequency identification (RFID) tags to the pallets and cases they ship to 10 central warehouses and roughly 250 supermarkets and department stores.



MIERDORF says he needs a clear picture of RFID's effect on the supply chain.

Wal-Mart's top 100 suppliers face a January 2005 deadline for compliance with its directive for RFID-tagged pallets and cases. The Bentonville, Ark.-based retailer's rollout will start at three Texas distribution centers that service about 150 stores [QuickLink 42676].

But while all eyes in the U.S. retail industry tend to focus on Wal-Mart, those interested in early results might want to look at the pilots Metro has undertaken in Europe. In April, Metro opened a so-called future store in Rheinberg, Germany, to pilot a number of technologies, including RFID, and its in-store tests have gone beyond the pallet and case level.

Metro does item-level tagging on razor blades from Gillette, cream cheese from Kraft and Pantene shampoo from Procter & Gamble. CIO Zygmunt Mierdorf said the company tags products, cases and pallets at its distribution center and runs the goods through readers at the center and later at the store, when the items arrive and when they move from the back room to the shopping floor.

RFID tags have a distinct advantage over bar codes because they can identify a container's contents without line-of-sight scanners, and the waves they emit can pass through materials such as cardboard and plastic. Each tag contains an antenna and a microchip that transmits information about a tagged item to a reader, which converts the radio waves into a digital form that can be passed to computer systems.

Getting real-time information about tagged cases and products can help retailers reduce the number of out-of-stock items and, overall, reduce the inventory in their supply chains. Metro's RFID applications are connected via a wireless network to an "information dashboard" where employees can track the tagged pallets, items and cases, Mierdorf said.

A second Metro pilot extends all the way back to the manufacturer, so the retailer can trace goods from the place they're made to the point of sale. That pilot is being done with a popular German fashion brand, Gerry Weber. Reusable tags are affixed to garments and read at Metro's central warehouse and two of its Galeria Kaufhof department stores, where the clothes are further tracked on shelves and at checkout stations.

A third pilot is due to start soon with Procter & Gamble Co.'s European division and Metro's wholesale Cash & Carry stores for business customers, according to Mierdorf. The pilot will start with pallets and cases and eventually move to the item level. As opposed to the first two pilots, which were done for research purposes for supply chain and inventory control plus theft protection, the third pilot is being used to determine the business case, Mierdorf said.

Mierdorf declined to disclose costs, saying only that he wants to gain a clear understanding of the benefits and implications on the supply chain. "I don't want to run into big surprises when we hook a hundred suppliers into the network," he said.

Using RFID technology isn't without problems. Mierdorf said that standards and bandwidth issues have yet to be resolved, and the cost of the tags must come down from their current 25 to 50 cents apiece.

Information transmission problems still occur involving glass, metal and liquids, and accuracy rates aren't always 100% for other materials. Mierdorf said his company gets 100% read rates with garments that lie flat but only 96% read rates with hanging garments. He said that will have to improve for the company to rely on the technology.

Mierdorf said companies should run their own pilots and trials to determine the impact on and potential benefits for their own businesses. "We can't talk about the individual benefits for company A, B and C. They have to find out," he said, adding that companies will have to change their internal processes to take full advantage of RFID.

But no matter how many pilots Metro does, one fact remains clear: Item-level tagging won't be done on a mass scale anytime soon. Metro CEO Hans Joachim-Korber said he expects it will take at least a decade before RFID is universally accepted and applied.

"We don't care about [that]. We have to start," he added. "In the end, it will replace the bar code." **44114**

Metro Group's RFID Timeline

APRIL 2003 – Opens "future store" in Rheinberg, Germany; pallets and cases are shipped with RFID tags, and tags are affixed to Gillette razor blades, Kraft cream cheese and Procter & Gamble shampoo.

MID-2003 – Starts end-to-end pilot with tags on garments, from manufacturing site to central warehouse to two department stores.

EARLY 2004 – Will commence end-to-end pilot with Procter & Gamble, from manufacturing site to distribution center to Cash & Carry stores.

NOV. 2004 – 100 suppliers expected to affix RFID tags to pallets and packages to 10 central warehouses and 250 stores.

JAN. 2006 – Over 300 suppliers expected to ship pallets and cases with RFID tags; all German warehouses to be RFID-ready.

Wal-Mart Takes 'Tough-Love' Approach With RFID Directive

NEW YORK

Wal-Mart Stores is taking a "tough-love" approach on RFID with the top 100 suppliers that are being asked by January 2005 to ship pallets and cases to its distribution centers using the technology.

H. Lee Scott, president and CEO of the retailer, said last week during a keynote address at the National Retail Federation annual conference here that there's pressure to move the suppliers to RFID "but also an understanding that we're not trying to hurt them either."

"If they just can't do it, I mean, it's not like we're going to quit doing business with them," Scott said.

Only Wal-Mart's top 100 suppliers face the January 2005 deadline that the retailer set for compliance, but the rest have been asked to follow suit by the start of 2006. Wal-Mart late last year informed its top suppliers during a meeting in Arkansas that the RFID rollout will start at its three Texas distribution centers, servicing about 150 stores, and continue incrementally across the country. Plans call for the time frame for the remainder of the 108 distribution centers and 3,000 stores to be disclosed later, on a rolling basis, to suppliers through Wal-Mart's RetailLink extranet site.

Scott said he thinks the time frame is realistic, "but if it isn't, we'll back off." He said that he recently met with suppliers, and "they were very positive in what they were doing."

"I don't think they were just doing that – I don't know what the technical term for it is – we call it 'sucking up,' " Scott added, his comments greeted by laughter from many of the more than 2,000 retailers and industry observers in attendance. "But I think many of our suppliers are right in the midst of it and involved," he said.

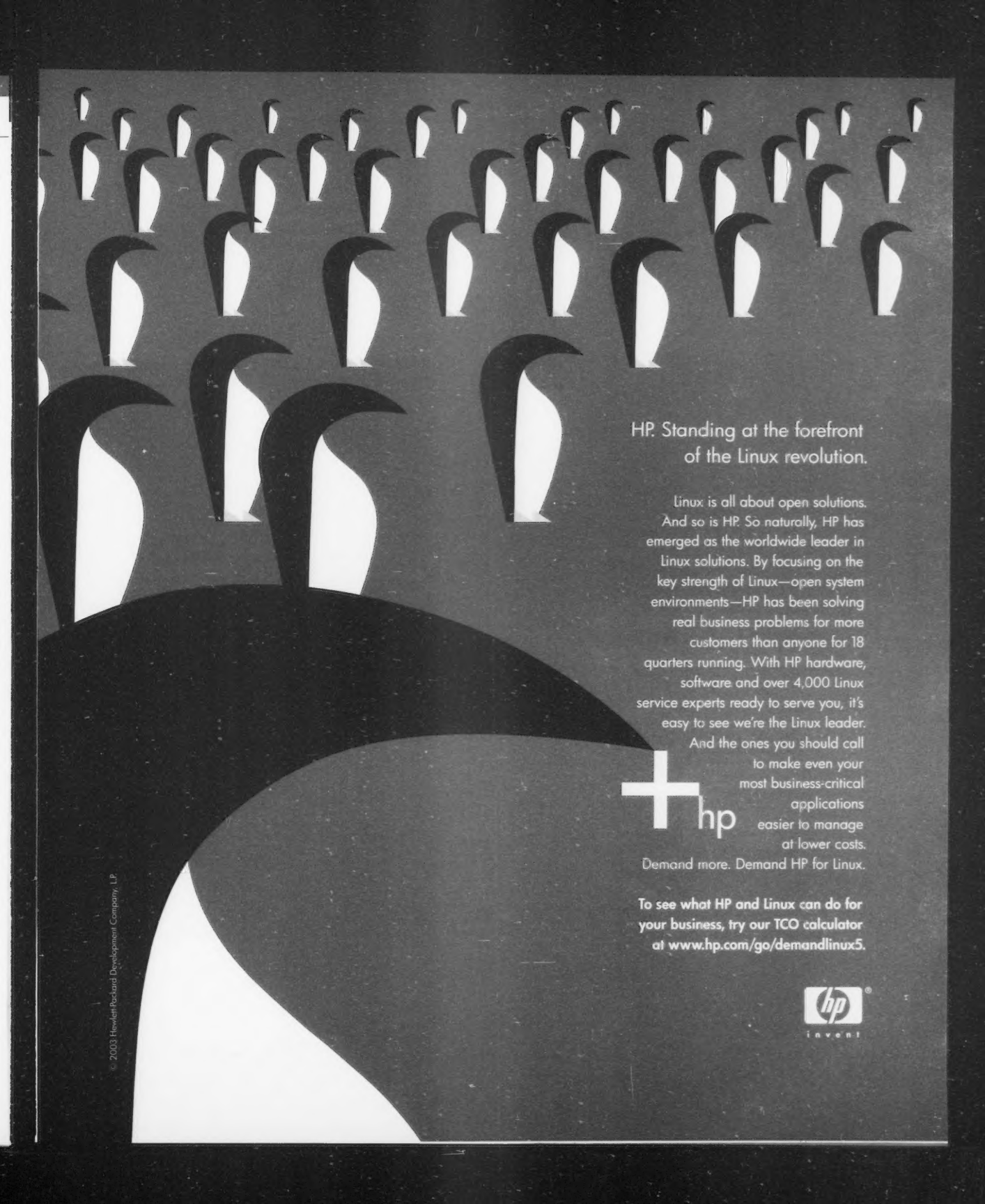
Scott told the attendees that RFID is "a very important innovation" and that benefits will be seen over the long term – not in 2004. He said RFID ultimately will allow retailers and suppliers to drive costs out of the business and do a better job of keeping items in stock, so they'll be able to pass cost savings on to consumers.

– *Carol Sliwa*

DATA GLUT

The EPCglobal standards body addresses the problem of RFID data management:

QuickLink 44133
www.computerworld.com


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IT, Vendors Scramble To Combat Phishing

E-mail scams proliferate, target personal data

BY JAIKUMAR VIJAYAN

THE RAPID GROWTH of so-called phishing scams has left IT managers, industry groups and technology vendors scrambling to deal with the e-mail fraud problem.

A large part of the effort is focused on consumer awareness programs, cross-border law enforcement activities and improvements in information sharing between companies and authorities. But new tools and services that could help companies better detect and respond to such scams are also beginning to emerge.

For example, Cyota Inc., a New York company that offers secure payment services to banks, is beta-testing an antiphishing service that uses a network of probes seeded around the Internet to detect scams, said CEO Naftali Bennet. The technology could also help users apply countermeasures, Bennet added. He said he expects the beta-testing to continue for several months.

Bath, England-based Netcraft Ltd. on Jan. 5 launched a service aimed at detecting and tracking Web sites involved in phishing scams. Envisional Ltd., a Cambridge, England-based provider of antipiracy and online brand protection services, added antiphishing capabilities to its offerings in December. Brightmail Inc. in San Francisco and Cyveillance Inc. in Arlington, Va., have also announced services designed to stop phishing scams.

The goal of phishing is to fool people into parting with personal information such as their credit card, driver's license and bank account numbers. The schemes typically involve e-mails with messages, return addresses, links and branding that appear to come from reputable companies.

Last week, for instance, Citibank Inc. and London-based Barclays Bank PLC warned customers to ignore messages urging them to go to spoofed Web sites where they would be asked to provide sensitive data. Phishers have also gone after customers of eBay Inc., PayPal Inc. and other e-commerce companies.

> **The consumer has become the weakest link in the trust chain.**
>
> **ROBERT GARIGUE,** CHIEF INFORMATION SECURITY OFFICER, BANK OF MONTREAL

Robert Garigue, the Toronto-based chief information security officer at Bank of Montreal, said that when the bank's customers were targeted by a recent phishing scam, it worked with the Royal Canadian Mounted Police and the FBI to quickly shut down a bogus Web site hosted by a service provider in the U.S. He said cooperation and information sharing are crucial to stemming the phishing problem.

Garigue thinks phishing is on the rise because increased security measures are making it harder for attackers to directly breach enterprise networks. "The consumer has become the weakest link in the trust chain," he said.

Dave Jevans, chairman of the recently formed Anti-Phishing Working Group, said the number of unique phishing scams has grown to about five per day. That compares with an average of 1.5 attacks daily before the holiday season, said Jevans, whose organization has more than 60 members, including financial services companies and IT vendors.

Companies whose names are used in scams can incur "substantial operational costs" if they have to change passwords and PINs for thousands of customers, said Gartner Inc. analyst John Pescatore. **44118**

PHISHING PRIMER

To learn more about phishing scams – and the resources available for fighting them – read this week's QuickStudy on **page 44**.

IT Outsourcing Could Be An Issue in Bank Merger

BY THOMAS HOFFMAN

The $58 billion merger announced last week by J.P. Morgan Chase & Co. and Bank One Corp. is expected to generate $2.2 billion in pretax cost savings over a three-year period, partly through a consolidation of the banks' systems, data centers and IT staffs.

J.P. MORGAN CHASE

- 92,900 employees
- $793 billion in assets
- Estimated 2003 IT budget: $4.5 billion

But an expected debate on IT outsourcing vs. managing systems internally is all but certain to play a pivotal role in shaping the combined company's technology direction, according to analysts who follow the financial services industry.

New York-based J.P. Morgan Chase, which is buying Bank One, signed in late 2002 a seven-year, $5 billion outsourcing contract with IBM [QuickLink 35388]. The agreement transferred the bank's data processing infrastructure and about 4,000 IT workers and contractors to IBM, and it lets J.P. Morgan Chase buy computing capacity as needed.

That capability was a key driver for the bank, said Jim Eckenrode, an analyst at TowerGroup in Needham, Mass. J.P. Morgan Chase was left with excess computing capacity after the bear market began on Wall Street in mid-2000, he noted.

In contrast, Chicago-based Bank One has brought most of its IT operations back in-house since late 2001 as part of a program that was championed by CEO James Dimon and executed by CIO Austin Adams [QuickLink 25374].

BANK ONE

- 71,200 employees
- $290 billion in assets
- Estimated 2003 IT budget: $2 billion

SOURCES: COMPANY STATISTICS AS OF SEPT. 30; TOWERGROUP, NEEDHAM, MASS.

The two banks "have some differences in terms of their operating philosophies, so there could be a culture clash between the two organizations," Eckenrode said.

Management hierarchy decisions are expected to affect the outsourcing vs. insourcing issue. William Harrison Jr., J.P. Morgan's CEO, initially will head the new company, but he plans to give up the CEO job to Dimon in 2006 while remaining as chairman. It's not clear whether Adams or J.P. Morgan Chase CIO John Schmidlin will be the IT chief. Both have been named to serve on the bank's executive committee.

"A lot of those decisions haven't been made yet on the structure of the organization," a spokesman for J.P. Morgan Chase said. He declined further IT-related comment.

Because the banks aren't expected to complete their integration effort until 2007, the role of outsourcing "is the $64,000 question," said Bill Bradway, an analyst at Financial Insights in Framingham, Mass. **44122**

Sun Advances N1 Effort With CenterRun Release

BY PATRICK THIBODEAU

Sun Microsystems Inc. before the end of this quarter plans to release its own version of the CenterRun provisioning technology it acquired last year.

Sun officials said last week that the first release won't have a major feature enhancement, but instead will give the provisioning software, which is key to Sun's N1 strategy, the look and feel of other Sun products. It will also serve as a bug fix and provide improved integration, they said. Sun gained the technology when it acquired Redwood City, Calif.-based CenterRun in August.

Meanwhile, Sun's effort to simplify data centers received a key user endorsement last week from Blue Cross Blue Shield of Massachusetts.

The Boston-based health care provider is adopting Sun's Java Enterprise System (JES), which for an annual set fee of $100 per employee delivers an integrated software stack that includes Sun's directory, application and portal servers [QuickLink 41523].

BCBS of Massachusetts has about 3,300 employees.

Frank Enfanto, vice president of operations delivery and information security at the health care organization, said JES "gives us the ability to be predictable in what our costs are and simplifies our software purchases." The alternative was to work with individual vendors and then try to integrate the applications, he said.

Even if Sun's per-employee pricing approach doesn't prompt other vendors to change their pricing structures, IT managers can use it as a bargaining chip, said Stephen O'Grady, an analyst at RedMonk, an IT analyst firm in Bath, Maine. **44119**



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BRIEFS

SEC May Take Action Against CA

Computer Associates International Inc. said it was notified by the U.S. Securities and Exchange Commission that the agency is considering civil charges against the company over allegations of improper revenue recognition. Three of CA's top finance executives resigned in October after an internal investigation showed that the company booked some sales prematurely during its 2000 fiscal year.

Judge Reaffirms IE Patent Ruling

A federal judge reaffirmed an August jury ruling that Microsoft Corp.'s Internet Explorer browser infringed on a patent held by Eolas Technologies Inc. and the University of California. The judge ordered Microsoft to pay $520.6 million in damages and denied a motion to suspend the ruling until the U.S. Patent and Trademark Office finishes a review of the patent. Microsoft said it plans to appeal.

IBM Reports 9% Revenue Increase

IBM reported $25.9 billion in revenue for last year's fourth quarter, up 9% from $23.7 billion in the last three months of 2002. Business from continuing operations improved in all major regions, with the Americas showing a 4% increase year over year. However, IBM said that increase would have been just 1% at constant currency rates. Fourth-quarter profits totaled $2.7 billion.

SAP's Sales Hit by Currency Changes

SAP AG released preliminary results for the fourth quarter, saying it expects to report a 3% decline year over year in both total revenue and new software license sales. But the business applications vendor added that both figures would be up by 4% on a constant currency basis.

Continued from page 1

Sears

Target Corp., for instance, when it signed a major outsourcing deal with IBM Global Services five years ago.

Kelly, who has been CIO at Sears since October 2002, said the company spent much of the past year assessing its IT infrastructure and saw two options to address the weaknesses it found: "remediate it internally or have it outsourced." Sears chose the latter for its desktops, server farms, routers, voice and data network, decision-support technology and systems that support Sears.com, he said.

"There's no competitive advantage to having a better e-mail system and a different type of voice or data network," Kelly said. "It's fundamentally a commodity that can be provided better as a service."

However, Sears won't outsource its in-store retail systems or the wireless application and other technologies that support its product-repair service business. Kelly said the company wants to invest more time in creating systems that will differentiate Sears from its competitors.

Kelly said Sears is evaluating service providers for the outsourcing contract and plans to make its decision by early March. The five being considered are IBM Global Services, Hewlett-Packard Co., Electronic Data Systems Corp., Computer Sciences Corp. and Affiliated Computer Services Inc.

Sears will continue to have project managers, architects, developers, business analysts and testers to support applications, operations and systems, Kelly said. It will also provide direction on the technologies being outsourced.

A survey conducted by the NRF Foundation and BearingPoint Inc., which was released at the NRF conference, found that 26% of the 57 retail executives polled plan to make outsourcing/offshoring a strategic initiative this year. The top three functional areas they said they would outsource were application development, integration projects and application hosting. Most said they would do so to cut costs and to increase the focus on core competencies, efficiency and performance.

"In many cases, in data center and IT operations, the infrastructure itself has to be significantly upgraded before it can be outsourced and turned over," said Scott Hardy, a vice president in BearingPoint's retail division. He said CIOs assess what they're good at and then typically adopt a hybrid model, choosing to keep some functions in-house, some offshore and others "nearshore" in North America.

Sears is keeping control over its in-store systems because it plans to have a "new generation of selling applications" that give customers a standard way to make purchases, regardless of channel, Kelly said.

Kelly said that within 30 days, Sears will select a point-of-sale (POS) application and an operating system that will run on the 35,000-plus IBM hardware devices it started rolling out last year. Sears is also taking bids from third parties to help with integration.



KELLY: Wants IT staff to focus on systems that differentiate Sears.

Sears' DOS-based POS systems, which were built to its specifications, will be replaced by a POS application running on either Windows XP Embedded or Linux, said Kelly. "The issue is going to turn on total cost of ownership," he said.

In addition to beefing up its enterprise selling systems, Sears will undertake a third major initiative that will focus on a new integrated tool for merchandise, assortment and demand planning. Sears plans to choose the vendor within 30 days, Kelly said.

None of Sears' upcoming IT initiatives involve its affiliate Lands' End Inc., which continues to have its own IT operations. But Sears plans to retool its systems so that Lands' End customers will be able to return merchandise at Sears stores, Kelly said. He said he's not certain about the completion date for that project. **44112**

Medical Insurer Plans IT Giveaway

BY BOB BREWIN

Medical insurer WellPoint Health Networks Inc. last week announced a $40 million plan to provide 19,000 of its contracting doctors with handheld-based e-prescription systems or desktop PCs for use in reducing the paperwork associated with filing insurance claims.

Dell Inc. will provide the handheld and desktop hardware, and Microsoft Corp. will integrate electronic prescription software into Dell's Axim handhelds as part of the project. WellPoint CIO Ron Ponder said the company, the second-biggest health insurer in the U.S., will offer the packages free of charge to doctors in the states where it has the largest presence: California, Georgia, Missouri and Wisconsin.

Thousand Oaks, Calif.-based WellPoint will also make the technology available to its other 150,000 contracting physicians at the discount rate it negotiated with its suppliers. Ponder put the value of the packages at roughly $2,100 per doctor, but he declined to disclose the cost that WellPoint is paying for the systems.

The insurer isn't looking at the plan from a traditional return-on-investment point of view, Ponder said. Instead, it expects the technology to help make doctors more efficient and, in the case of the e-prescription system, to potentially reduce medical errors.

In January 2001, General Motors Corp. took a similar approach when it launched a program to equip 5,000 doctors who treat its employees. It planned to provide them with handheld computers that included a digital medical records system and online reference materials. But Dell spokesman Dean Klein said the WellPoint giveaway is the first that the computer maker knows of within the health care industry itself.

Although WellPoint will provide the hardware to doctors, they will still need to buy their own medical practice management software, Ponder said.

Barry Heib, an analyst at Gartner Inc., said electronic prescribing will have "a hard time getting off the ground" without the backing of insurers like WellPoint. But he added that WellPoint may soon find out that not all doctors like the way e-prescription technology works. The company could also face skepticism from doctors who view the free program as way to lock them into one type of application for the long term.

But Steve Shihadeh, general manager of Microsoft's health care and life sciences group, said he expects to offer doctors a choice of two applications. Shihadeh added that Microsoft is still negotiating with e-prescription developers but hopes to make its choices within 30 days. **44116**

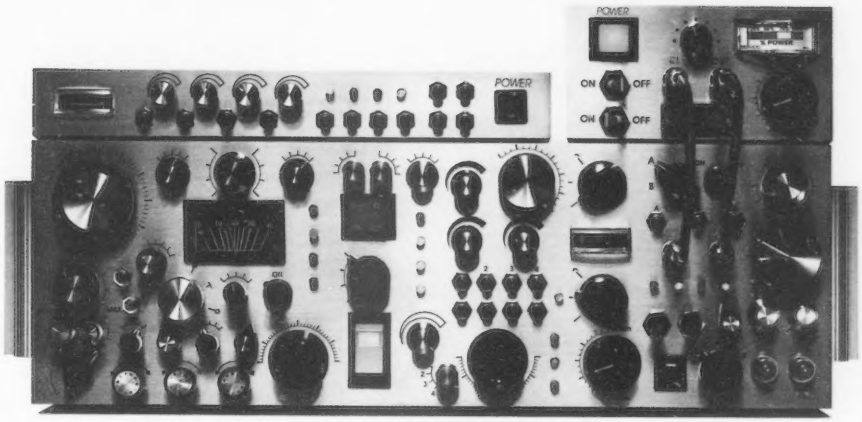
IT Choices

HARDWARE:

- **Dell Axim X3i Pocket PC handheld computer with built-in 802.11b Wi-Fi modem**
- **Dell Optiplex GX270 desktop PC with Pentium 4 processor, plus a bundled Dell P1500 laser printer**
- **Cisco wireless access points**

SOFTWARE:

- **E-prescription software to be integrated by Microsoft**
- **One-year subscriptions to an e-prescribing service**



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Continued from page 1

Linux

its 6,000 employees to Linux desktops, Vice Chairman Chris Stone said last week. "We're doing it. We're moving all of our employees to using Linux desktops internally," he said. A Novell spokesman said there's no timetable for the move, calling it "a long-term, logical progression."

Sun, meanwhile, uses its Linux-based Java Desktop System internally and started selling it late last year. Peder Ulander, Sun's desktop solutions marketing director, said IBM's interest in a Linux desktop is "just one more endorsement, or acknowledgment, that we are probably headed down the right space."

Skeptical, Yet Eager

Although many users are interested in seeing what these vendors can do with a Linux desktop, it will take a lot to overcome their skepticism. Still, users are eager for any desktop alternative that the vendors may bring to the competitive landscape.

Jeffrey Campbell, vice president of technology services and CIO at Fort Worth, Texas-based Burlington Northern Santa Fe Corp., said a Linux desktop alternative "would merit a serious review."

Campbell cautioned that the price could be less compelling once support is considered, and he said security may also be a problem with Linux. But he said the growing interest in Linux on the desktop "could be a wake-up call for Microsoft to realize that there may be marketplace alternatives."

Harry Roberts, CIO at Boscov's Department Store LLC, a 40-store operation based in Reading, Pa., is considering replacing Windows NT with Linux on about two-thirds of the company's desktops — the ones used by employees who aren't heavily reliant on Microsoft applications. He's also looking at Sun's StarOffice productivity suite.

"We will look at the TCO [total cost of ownership] and make a decision," said Roberts. "We certainly think it's a good, attractive platform."

But Linux on the desktop clearly faces an uphill battle. Users may be interested, but they're largely unconvinced.

TCO a Question

"My personal belief is that the jury is still very much out on the issue of total cost of ownership advantage of Linux over Windows," said Gordon Wishon, CIO at the University of Notre Dame in Indiana.

The big vendors' recent moves "bode fairly well" for Linux on the desktop, said Christopher David, the chief technology officer for Arlington County, Va. But he said it still doesn't ease his concerns. David worries about interoperability with ERP and CRM applications, as well as back-end systems. Rather than taking the Linux desktop route, the county has embarked on a portal/server strategy to "untether" his workforce from their desktops and give them access from any location.

Mike Taylor, CIO at Todd Pacific Shipyards Corp. in Seattle, also likes the portal strategy. Taylor plans to buy 450 PCs in the next few months and estimates that he could save $20,000 by moving to Linux. But training people on a new system would quickly absorb that savings, he said.

The portal approach would genuinely lower support costs, "as opposed to just making a cheaper operating system available," Taylor said.

44121

Todd R. Weiss contributed to this report.

IBM's Desktop Focus Is on Portals

IBM's desktop strategy is focused on a gradual shift to portal technology. A Web-based portal to applications residing on a server could be accessed on the desktop by a client running Linux, Windows or another operating system.

In an interview last month, Scott Handy, head of IBM's Linux desktop strategy, said real desktop savings come from the server-based distribution of applications, which can cut total cost of ownership by half. Moving to a Linux desktop would also yield cost savings, he said, mostly in the form of lower fees for licensing, which he pegged at about 20% of the total cost of ownership.

But an internal memo that IBM CIO Bob Greenberg wrote in November calls for a Linux-based desktop. "Our chairman has challenged the IT organization, and indeed all of IBM to move to a Linux based desktop by the end of 2005," Greenberg wrote. "This means replacing productivity, Web access and viewing tools with open standards based equivalents."

Trink Guarino, an IBM spokeswoman, said the memo was "meant not as a policy directive" at this point. Instead, she said, it was sent as a way to "motivate" the IT organization to look at the possibilities of running Linux as the desktop operating system of choice for all of IBM's approximately 300,000 employees. But, Guarino said, "based on that memo, I would have to say we're considering it."

In a research note last week, AMR Research Inc. said the IBM memo gave credibility to the idea of a Linux desktop. "More immediately, the mere suggestion of IBM's dedication will frustrate Microsoft and its partners' efforts to cast doubt upon the corporate suitability of an open-source desktop," AMR said.

Microsoft Corp. officials, meanwhile, downplayed the memo's significance. "IBM is an important partner and customer for Microsoft," the company said in a statement, "and Microsoft will continue to work with IBM to deliver high value desktop solutions for both IBM and for its customers."

– Patrick Thibodeau and Todd R. Weiss

> **[The growing interest in desktop Linux] could be a wake-up call for Microsoft.**
>
> **JEFFREY CAMPBELL,** CIO, BURLINGTON NORTHERN SANTA FE

LinuxWorld 2004: Same Show, New Linux Directions

As thousands of enterprise IT users head to the LinuxWorld Conference & Expo in New York this week, there's more on their minds than using Linux for established tasks such as consolidating servers, improving security and lowering costs.

Lt. Fred Wissing, application development services supervisor for the New Jersey State Police in West Trenton, said he's sending several members of his IT team to the show, which begins tomorrow at the Jacob K. Javits Convention Center, so they can find new ways of using Linux within the IT systems of the state police.

"I've been wanting for a long time to pull the trigger on the desktop" and use Linux for all workers to do their jobs, Wissing said. The problem, he said, is that some software vendors are still using old programming languages and haven't made the changes needed to port their applications to Linux. Specifically, document management systems and case-tracking applications used by the state police aren't yet ready for the open-source operating system, according to Wissing.

"My people are going to be there with a mind-set of finding additional ways to leverage Linux here," he said, explaining that they would be looking for applications to help make their Linux infrastructure even more robust and finding others to replace legacy programs.

Most back-end server infrastructure in the department is already running Linux operating systems from SUSE Linux AG or Red Hat Inc., he said, including database and application server software.

Tim Kuchlein, information services director at Clarity Payment Solutions Inc., an electronic payment systems processing company in New York, is in the midst of a project to move from an existing system of Red Hat 7.3 on Intel hardware to the new 64-bit SUSE Linux OS on IBM's PowerPC hardware. Clarity is first installing the hardware and software into its disaster recovery site to do testing and configuring. It will later move its production debit-card processing systems over to the new equipment, he said.

"We're aiming to have the test stuff in by March or so and replacing all systems by 2005," Kuchlein said. "The deal is pretty much done."

No one from Clarity will attend LinuxWorld because the company has gotten the information it needs through its established relationships with Linux vendors, Kuchlein said. "They'd be preaching to the choir," he said. "We've been very happy with Linux. For us at this particular time, we know what we want to do."

– Todd R. Weiss

ALSO AT LINUXWORLD

Novell will announce Linux support for its Web app development software. QuickLink 44096

Major database vendors will disclose plans to strengthen Linux wares. QuickLink 44092

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IBM Plans to Resell InfiniBand Switches

BY LUCAS MEARIAN

IBM last week said it has signed a five-year agreement to resell InfiniBand switches for use with its servers and storage devices, a move that could boost the once-touted high-speed interconnect technology.

IBM plans to integrate Topspin Communications Inc.'s line of switches with its eServer systems and TotalStorage disk and tape products. The combined offering will be aimed at high-performance computing and database clustering applications as an alternative to setups based on Gigabit Ethernet and Fibre Channel, IBM said.

Mountain View, Calif.-based Topspin currently sells 4X InfiniBand switches designed to provide I/O throughput of up to 10Gbit/sec., and it plans to add 12X devices that would be capable of 30Gbit/sec. data rates later this quarter.

Chuck Kesler, program manager for grid deployment and data center services at MCNC Grid Computing & Networking Services in Research Triangle Park, N.C., has been testing a Topspin switch as part of a 64-node eServer cluster. The InfiniBand switch connects 12 of the nodes, and Kesler said he has seen an I/O performance boost of up to six times better than Gigabit Ethernet.

MCNC is a nonprofit company that provides high-speed interconnection services to more than 180 universities and public institutions in North Carolina. Kesler said the biggest performance improvement provided by Topspin's switch comes from the elimination of IP management layers.

"It's not that we didn't want to go with Gigabit Ethernet," he said. "That's the primary switch interconnect fabric on our clusters. But we wanted to look at a second option for lower latency and faster speed."

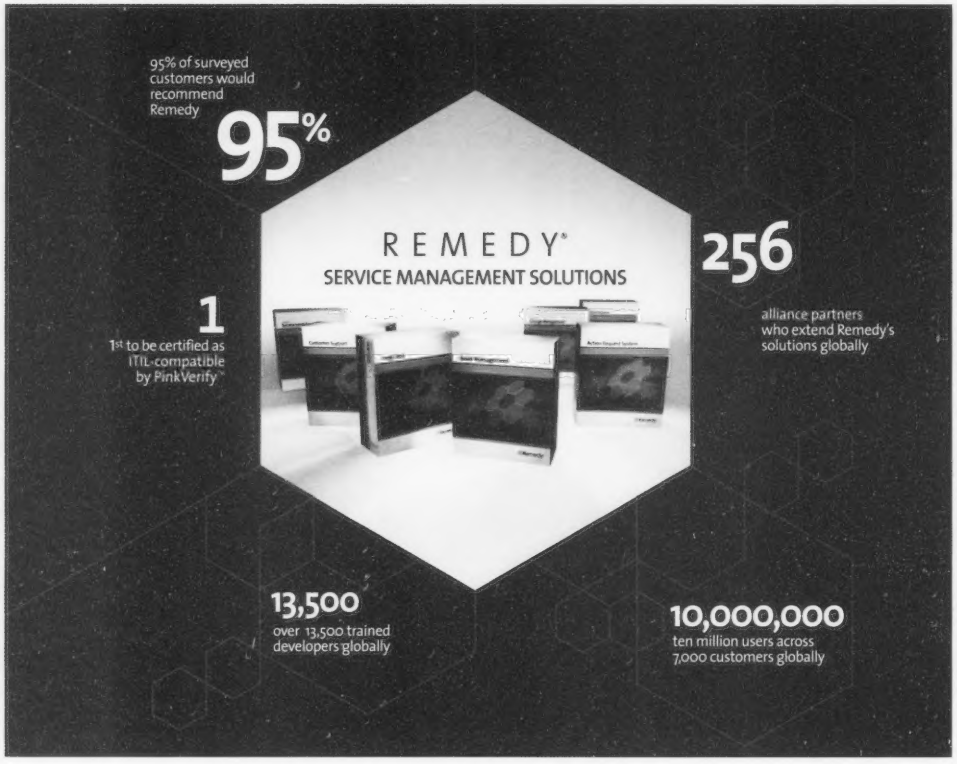
Hype Cools Down

InfiniBand was widely hyped as a faster data center interconnect technology. But the hype died down in late 2002, after IBM, Intel Corp. and Microsoft Corp. all dropped plans to develop their own InfiniBand products [QuickLink 35299].

Tony Prigmore, an analyst at Enterprise Storage Group Inc. in Milford, Mass., predicted that IBM's deal will help InfiniBand make headway with users as a core infrastructure technology by year's end.

"It definitely will start as a server-based technology, which will have low-latency advantages for applications," Prigmore said. Once InfiniBand establishes itself as a server clustering technology, users should become more comfortable about using it at the network level, he added. **44062**

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MARYFRAN JOHNSON

Defying Gravity

THE MOST POWERFUL software company in the world would love to kill it off. The most ridiculous software company in the world can't stop suing over it. Yet Linux marches triumphantly onward and will be preening its new-product feathers this week at the LinuxWorld Conference & Expo in New York.



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

Against all odds, the open-source operating system has steadily grown up from grass roots to widespread enterprise use, adopted by CIOs and senior IT managers who value its cost savings, its price/performance and the alternative it offers to a lifetime sentence of Microsoft Windows. Its influential cadre of vendor supporters, aggressively led by IBM and Hewlett-Packard, now includes all the major software, hardware and networking vendors (with the notable exceptions of Microsoft and lawsuit-happy SCO Group, of course).

Even the lurking shadow of SCO's $3 billion lawsuit against IBM over intellectual property rights to Linux — and the pipsqueak vendor's threats to directly sue user companies — has done nothing to dampen IT or business enthusiasm. No fear. No uncertainty. No doubt. In fact, the past two weeks have been especially busy on the penguin watch. Hardly a day passed without another Linux story bobbing to the surface. Consider the following:

■ SCO finally ended 10 months of legal foot-dragging by delivering some of the infamous disputed code to IBM [QuickLink 44056]. At last, a look at the smoking gun? Nah. Not a single example of those alleged copyright violations that we've all heard about ad nauseam. The central issue seems to be boiling down to contract language, like how the two companies were defining things like *derivative works*. Spare us the details.

■ Novell stepped forward to indemnify its newly acquired SUSE Linux enterprise customers against legal actions by SCO [QuickLink 44020]. HP took a similar protective stance last September. Sun Microsystems also shields its customers from such legal assaults. It's time that IBM and Red Hat stepped forward to do the same, isn't it?

"Anybody that sells code should indemnify their customers," as analyst Bill Claybrook at Harvard Research Group Inc. so aptly put it in our story. "If they're selling software products, then they should stand behind their products."

■ Open Source Development Labs Inc. announced its $10 million legal defense fund against Linux copyright-infringement lawsuits by SCO.

■ Security researchers in Poland announced that they had found a new flaw in the Linux kernel [QuickLink 43947], but users promptly shrugged it off as no big deal.

"I would say [Linux] is more secure than Microsoft and other environments, because the code is looked over by so many people," explained John Cahill, senior network security engineer at Piedmont Natural Gas Co. in Charlotte, N.C. "It's so widely available that any vulnerability can be quickly identified and patched."

■ A U.K.-based Web site published an IBM internal memo in which CEO Sam Palmisano challenged his company to migrate to Linux desktops and other open-source-based tools wherever possible [QuickLink 43887].

■ A Linux platform for government and corporate users in Asia was announced by Japan's Miracle Linux Corp. and China's Red Flag Software Co. [QuickLink 43887]. Japan, China and South Korea are all climbing on the Linux bandwagon in hopes of diminishing the dominance of Western software companies in the operating system and applications markets.

So if these early days of the new year are any indication, Linux and open-source will turn out to be the liveliest technology space to watch in 2004. Who says flightless birds can't defy gravity? **44078**



PIMM FOX

Tangible Deal For Virtual IT

JUST 20 MINUTES after the ink was dry on the deal for EMC to buy VMware Inc. for over $600 million in cash, I spoke with VMware CEO Dianne Greene and asked her to recount the drama and excitement of the acquisition.

She balked.

She wanted to talk about customers.

She wanted to tell me how integrating storage, networking and operating system virtualization was going to make it easier and cheaper for companies to run their data centers.

She told me it made sense for customers that VMware didn't link up with a proprietary hardware vendor such as IBM or Hewlett-Packard.

She told me how Palo Alto, Calif.-based VMware would retain its independent sales force and added, with a humility not often seen in Silicon Valley, that VMware was lucky because Linux's popularity made it commonplace for data centers to confront multiple operating systems.



PIMM FOX is a freelance writer in Santa Barbara, Calif. Contact him at pimmfox@pacbell.net.

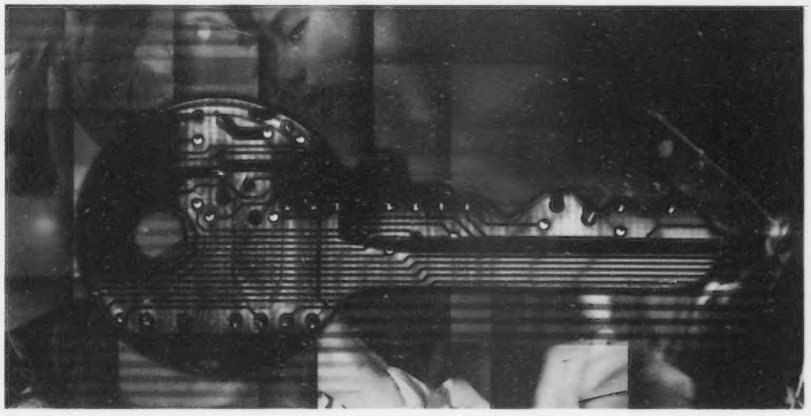
She wanted to stick to business

That's reassuring, since most IT mergers are perilous attempts at cost savings that ultimately hurt customers.

In a sense, VMware's customers have been clamoring for a combination of virtualization technologies at the corporate level. It just doesn't make sense to do storage, networking and operating system virtualization in silos. And customers who worry about working with storage vendors other than EMC shouldn't be concerned, since Greene said that as an independent subsidiary, VMware will continue to share application programming interfaces with other storage vendors.

Combining storage and networking virtualization moves the technology from a tool designed for server consolidation to a strategic part of IT infrastructure. It's the way to provision and monitor performance, control access rights and maintain clone copies of





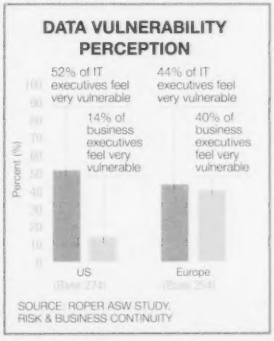
INFORMATION LIFECYCLE MANAGEMENT IS:
a strategy that uses people, processes and technology to store and tap critical business data throughout its lifespan of value.

IN THIS EDITION:
See how companies are evolving from the traditional notion of disaster recovery as part of a discrete storage and business continuity operation to a more holistic view of information protection and recovery that's rooted in business value.

Information Protection Isn't About Cost; It's About Business Value

IT SEEMS EVERY DAY we wake up to a new challenge to our organization. Like never before, the engines of global economic prosperity—people, capital, infrastructure and information—need to be managed for resiliency in the face of uncertain yet pervasive risks.

Information Lifecycle Management addresses the critical concern of how best to protect information vital to commerce and public safety. The end goal is an information infrastructure that ensures the availability of critical information anytime, anywhere across the globe. Achieving this goal requires new thinking, technologies and management expertise needed to balance trade-offs in cost, risk and business value.



The challenge is to move toward this goal aggressively while operating within real-life budgetary, process and technological constraints. Information Lifecycle Management helps you do that by aligning the various classes of critical applications and data across your enterprise to the appropriate level of protection and availability.

According to Nancy Marrone-Hurley, a senior analyst at Enterprise Storage Group, a research company in Milford, Mass., applying Information Lifecycle Management practices to information protection and recovery can make a significant difference. "Data availability is one thing, and long-term lifecycle management is

AVAILABILITY & PROTECTION

INFORMATION PROTECTION: WHY NOW?

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  Sarbanes-Oxley, HIPAA, Basel II, InterAgency White Paper
- **HIGHER MARKETPLACE EXPECTATIONS**
  Traditional Disaster Recovery which relies on moving tapes from a backup site to a hot site provides a 24 to 72 hour recovery timeframe. Many, if not most, customers won't wait that long before switching to a competitor's product or service.
- **BETTER OPTIONS, LOWER EFFECTIVE COST**
  Hardware and telecommunications costs continue to decline while new availability options such as backup and replication using ATA storage technologies increase.

another," she says. "The latter helps you know where information is, how to ensure that it's where it's supposed to be and is readily accessible. Information Lifecycle Management helps you prove the integrity of the data as well."

Marrone-Hurley and other experts cite a number of issues that make a lifecycle approach to data protection attractive. The first is the complexity that governs information management. Not only is information growing at an exponential rate, but it's becoming increasingly difficult to detangle applications as they draw information from each other. "When companies had a fairly siloed approach to applications, there were well-defined boundaries," says Colin Rankine, vice president in the computing infrastructure group at Forrester Research in Cambridge, Mass. "But as companies migrate to a distributed application architecture, applications have become interdependent."

"When companies had a fairly siloed approach to applications, there were well-defined boundaries."

—Colin Rankine, vice president in the computing infrastructure group, Forrester Research

The issue of regulatory compliance is also increasingly high-profile. HIPAA, Sarbanes-Oxley and Basell II are just a few of the most visible new regulations that mandate the way that many companies manage and protect corporate data. With the advent of this new regulatory environment, companies must protect information longer and have the ability to recover faster. Moreover, they must protect the right data—and know when it's time to delete information that's outlived its function. "It's becoming more of an issue, and will likely continue as more regulations appear over the next couple of years," says Rankine.

Many experts recommend the following steps to success for information availability and protection:

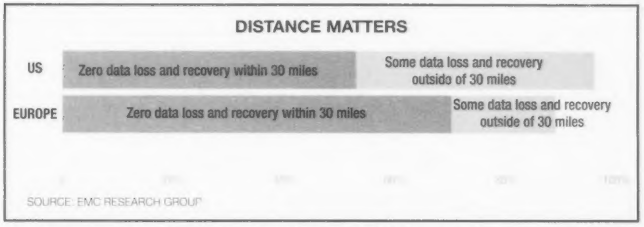
LEAD WITH BUSINESS REQUIREMENTS

Many CIOs will conduct a business impact study, which requires conversations with line of business (LOB) peers to get at the true business value of each application. To say it's a ticklish undertaking is to state the case lightly, says Marrone-Hurley. "It's very political," she says. "Nobody in the organization is going to think that their business data is less important than others'."

That's why, companies frequently call in outside assessment teams to help conduct the classification study, particularly in industries where regulatory compliance is an issue. "It takes a lot of discipline, and outside experts can provide some very helpful objectivity," says Gregg Therkalsen, vice president of business continuity solutions at EMC.

Once CIOs have an idea of the value of each application, they must formally classify them. Therkalsen advises that IT executives use at least three different categories of service-level importance:

- **Mission-critical**—This includes applications that will, if interrupted, result in severe financial, regulatory or safety issues for the company. "We're talking about systems that are so vital that if they are taken down, they'll severely disrupt the company and potentially broad sections of our economy," says Therkalsen. Recovery time for these applications will be in seconds, minutes or several hours.
- **Essential**—Therkalsen classifies most supporting business systems, such as financial analysis applications, in this category. These systems must not be down more than a day.
- **Deferrable**—This includes applications that contain data that is used periodically, such as market analyses. These applications



Forty-two percent of US IT executives are willing to accept data loss in order to increase distances to their secondary sites. European IT executives are less likely to make this trade-off.

are looking at a recovery time of 24 hours or longer.

Marrone-Hurley points out that business value isn't always related to monetary value. Certain kinds of data, for example, must be stored according to levels of availability and integrity mandated by regulatory compliance, and availability service levels must reflect this.

DESIGN FOR SUCCESS

Armed with a clear agreement on the critical classes of applications and data, the work of designing solutions begins. There are five key design principles for building a resilient, highly available information infrastructure:

Replication. Information is typically backed up so that companies can recover from operational failures and major business disruptions as well as archive data in accordance with business and regulatory requirements. These requirements are converging and should be viewed as one enterprise-level business requirement.

FIVE KEY INFORMATION INFRASTRUCTURE DESIGN PRINCIPLES

- REPLICATION
- GEOGRAPHIC DISTANCE
- CONSISTENCY
- ACCESSIBILITY
- COST AND PERFORMANCE

Geographic Distance. Consolidating information processing into one center can save money, but it also creates vulnerability to a single risk event. Systems need to be designed for both economies of scale and distribution of information across suitable distances.

Consistency. Data and applications are often backed up at different times of day or week, making it nearly impossible to "restart" the enterprise at a single point in time. Backup and replication to a single point in time is a critical underpinning of a well designed infrastructure.

Accessibility. Anytime, anywhere access to information requires geographically redundant and diverse network connectivity that enables workers to continue operations from various remote locations.

Cost and Performance. The optimum design provides for backup, recovery and high availability in a fashion that is both cost-effective and enables the right level of protection to be applied to the appropriate class of applications and data.

By applying different levels of protection to different levels of information, companies can tie the right price and performance levels to each group of information. "I compare it to how people might protect personal information," says Mark Lewis, the chief technology officer at EMC. "The most important records are in a safe deposit box in a bank, more moderately important records in a fire safe in the house, and others are in a desk drawer. Each method has different costs associated with it that corre-

"Business value isn't always related to monetary value."

—Nancy Marrone-Hurley, senior analyst, Enterprise Storage Group

spond to the business value of the data."

Further, if the CIO can give a dollar value to the different levels of protection, it allows line of business executives to make decisions based on numbers, not technical jargon. "It enables the CIO to go to a business executive and say, 'If your applications are vital, protecting them will mean an investment of X dollars. If you don't think you want to pay that, you can have less protection for Y dollars,'" Marrone-Hurley says. "This allows the LOB executive to weigh information protection in terms of what it's going to do to his P&L, and they can begin to cost-justify the investment necessary to protect each level of application."

MANAGE CHANGE

Of course, shortly after you classify your applications and design and implement the appropriate level of protection, your business requirements will change and new processes and technologies will be introduced. Any protection and availability program that does not anticipate and allow for this fact is seriously flawed.

Ron Williams, a senior manager at the operation center at EarthLink, a $1.3 billion ISP based in Atlanta, says his company is working on a tiered storage strategy as a way of managing burgeoning data caches in conjunction with business value. "What EMC has been doing for a while is providing the ability to move data that needs to be accessed faster to storage that can deliver it faster," he says. "So much data changes in value so fast, so we need to seamlessly tie tiers together."

Building a successful alignment strategy is an ongoing process, stresses Therkalsen. "New applications are introduced so fast that we recommend revisiting [a strategy] quarterly, and at a minimum twice annually," he says. "If you don't turn this into a regular business practice, you'll have to repeat the process from scratch a year later."

More and more, companies can use tools to create automated service policies for each level. "That's the value-add we expect to see in software solutions," says Marrone-Hurley. "We'll see more intelligence going into software where it monitors service levels and sets policies."

In an era of global data centers and companies that have tightly intertwined supply chains with partners and distributors, the ability to protect information is increasingly vital to the success of the enterprise. As such, companies must manage this task at a very high level, and make sure that their protection and recovery policies are driven by the value of the information first and foremost. Information Lifecycle Management can help do that.

"Our vision of Information Lifecycle Management is a very integrated function where you can specify types of information protection and recovery," says Lewis. "Information protection is something that companies must take very seriously."

NEXT: *In the next part of this series, we'll look at new compliance and governance regulations.*

FIVE KEY ENABLING TECHNOLOGIES

- **CLUSTERING**
  Automatic failover to a secondary site
- **OPTICAL AND SONET TRANSPORT**
  High-speed data transport for data replication and failover
- **ENTERPRISE-CLASS BACKUP**
  Enterprise-wide data backup, leveraging backup-to-disk technologies such as ATA
- **REPLICATION**
  Local and long-distance duplication of data to ensure a consistent restart for the enterprise
- **VIRTUAL INFRASTRUCTURE MANAGEMENT**
  Ability to run multiple operating systems and applications simultaneously

QUESTIONS ABOUT INFORMATION LIFECYCLE MANAGEMENT?

If you've got any burning questions about Information Lifecycle Management—and how you can begin implementing such a strategy—send them to ilm_questions@emc.com. We'll answer the most frequently asked questions later in this series.

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SVP, Broadcast Entertainment Technology

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Epsilon



JIM MODDE
Chief Security Officer
Farm Credit Services of America



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SVP, Enterprise Security & Recovery
FleetBoston Financial



DOUG BUSCH
VP & CIO
Intel



RICK PELTZ
SVP & CIO
Marcus & Millichap



JOHN GREER
Director, IT Infrastructure
Pacific Gas & Electric



ANDRE MENDES
Chief Technology Integration Officer
Public Broadcasting Service



JIM DAVIS
SVP
SAS Institute

Agenda Snapshot*

*subject to change

For details, updates, and to register visit **www.snwusa.com**

Monday, April 5

(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:30am	Industry Primer, Career Development and Skills Development Tracks
1:00pm-5:30pm	SNIA Tutorial Sessions
Noon-5:00pm	Golf Outing at the Wildfire Golf Club, Faldo Course
7:00pm-9:00pm	Welcome Reception

Tuesday, April 6

(General Conference - Day One)

7:15am-8:15am	Continental Breakfast
8:15am-9:15am	Opening Remarks and Visionary Presentation
9:15am-12:15pm	General Sessions
12:15pm-1:30pm	Networking Luncheon
1:30pm-3:50pm	General Sessions
4:00pm-5:30pm	Technical, Technical/Business and Business Tracks
5:30pm-8:30pm	Expo and Buffet Dinner, Interoperability and Solutions Demo

Wednesday, April 7

(General Conference - Day Two)

7:30am-10:30am	IDC Breakfast Briefing
8:15pm-Noon	General Sessions
Noon-1:30pm	Expo and Buffet Lunch
Noon-7:15pm	Interoperability & Solutions Demo
1:35pm-3:35pm	General Sessions
3:45pm-5:15pm	Technical, Technical/Business, Business and SNIA Tracks
5:15pm-7:15pm	Expo
7:30pm-9:00pm	Gala Evening

Thursday, April 8

(Tutorial and Breakout Sessions)

7:30am-8:30am	Continental Breakfast
8:30am-11:45am	Technical, Technical/Business, Business and SNIA Tracks
11:45am	Conference Concludes

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Total 4-day Package (April 5, 6, 7, 8): (Includes General Conference Package; Technical and Business Tracks; SNIA-produced Tutorials; SNIA-Certification "Test-Ready" Courses)	$1,290	$1,690
Options for IT Vendors**		
Total 4-day Package (April 5, 6, 7, 8): (Available to Sponsoring Vendors and their Resellers/Integrators; Industry Consultants; and Storage Solutions Implementors)	$1,290	$1,690
Non-Sponsoring/Exhibiting Vendor Package:	$5,000	$5,000

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"Best Practices in Storage" Awards Program

Submit your nomination today at www.snwusa.com or email Nanette Jurgelewicz at nanette_jurgelewicz@computerworld.com

Awards Ceremony: Wednesday, April 7, 3:05pm, SNW Main Stage

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Complimentary for Registered IT End-Users

The Pre-Conference Golf Outing at The Wildfire Golf Club, Faldo Course located at the JW Marriott Desert Ridge Resort, is complimentary ($165 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Michael Meleedy at 1-508-820-8529

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"... the Interoperability & Solutions Demo gives us a flavor for the technology that's coming out ... a chance to 'kick the tires' and talk to vendors ..."

Michael Gosnik
Director, Storage Services
Nielsen Media Research



"... what sets SNW apart is the networking opportunities ..."

Brad Friedman
VP, Information Services
Burlington Coat Factory



"... I enjoy the opportunity to share my experiences and hear what other people are doing ..."

Scott Behore
Second VP, IT Operations
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Application for Conference Registration



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Registration Information: (This section must be completed in order to process your application)

First Name: _____ Middle Initial: _____ Last Name: _____

Title: _____ Company: _____

Street Address: _____ Suite, Apt., etc.: _____

City: _____ State/Prov: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Corporate Website: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about the golf outing on Monday, April 5th? ❑ Yes ❑ No

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:
- ❑ Transportation/Utilities
- ❑ Mining/Oil/Gas
- ❑ Media/Publishing
- ❑ Banking/Finance/Insurance
- ❑ Telecommunications
- ❑ Wholesale/Retail (Non-IT)
- ❑ Advertising/Marketing/Public Relations
- ❑ Education
- ❑ Government/Military
- ❑ Healthcare
- ❑ Manufacturing (Non-IT)
- ❑ Other

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ CFO/Controller/Treasurer
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (Internal) or Other
- ❑ Sales/Marketing/Product Staff
- ❑ Engineering Staff
- ❑ Press

The one item that best describes your involvement in the IT purchase process:
- ❑ Authorize the purchase
- ❑ Approve the budget
- ❑ Initiate the purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Identify/establish the need to purchase

Employees in your entire Company:
- ❑ 10,000+
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ Less than 100

What is the estimated annual revenue of your entire organization?:
- ❑ $10 Billion+
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

Your organization's annual IT/IS budget for all IT/IS products):
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Annual company IT budget (Storage products and services):
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Your personal IT spending authority (All IT products and services):
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

Your personal IT spending authority (Storage products and services):
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Less than $1 Million

SECTION B - FOR IT VENDORS ONLY

Your Business/Industry:
- ❑ VAR/VAD/ASP/System Integrator
- ❑ Industry Consultant/Storage Solution Integrator
- ❑ Manufacturing (IT)
- ❑ Computer Retailer/Dealer/Wholesaler
- ❑ Software Development (Storage)
- ❑ Other Computer Related (Non-Storage)

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CFO/Controller/Treasurer
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- ❑ Sales/Marketing/Product Staff
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3) The registration fee will be refunded, less a $250 service charge (if written notice is received by March 19, 2004).

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your application stack. It also lets you take a running virtual operating system that's already network-connected and move it across machines while transactions are occurring. It's an effective way to add memory and do load balancing. And this takes hours rather than days. Clones for disaster recovery aren't as much of a headache, and you can move pools of machines to where they're needed.

Gartner analyst Thomas Bittman says enterprises should change their thinking about consolidation and pursue a server virtualization strategy rather than a server consolidation project. EMC's purchase of VMware should make that easier to accomplish. **43988**

THORNTON A. MAY

Rethinking Vendor Management

"THE RELATIONSHIP between corporate IT and vendors has never been worse."

This is the unambiguous conclusion of high-impact IT practitioners who recently attended executive sessions at UCLA, UC Berkeley and Ohio State.

Research being conducted by scholars at the business schools of these universities indicates that among the many IT processes requiring a fundamental rethink in 2004, the one that's most broken and in need of immediate remediation is vendor management.

In conjunction with the "Managing the Information Resource" program at UCLA, we asked IT leaders the following two questions:

1. How satisfied are you with your vendors?
- Very satisfied: 20%
- Somewhat satisfied: 20%
- Somewhat dissatisfied: 50%
- Very dissatisfied: 10%

2. How satisfied are you with current vendor management practices?
- Very satisfied: 2%
- Somewhat satisfied: 8%
- Somewhat dissatisfied: 30%
- Very dissatisfied: 60%

We could easily use the rest of this article (and about 120 doctoral dissertations) to discuss "What IT Leaders Say Vendors Do Wrong." The top four complaints we hear most frequently are:

- They're always selling, never solving.
- It's always about them, never about us.
- They offer very few true insights or actual solutions.
- They bombard us with much-too-complicated billing and labor-intensive account-relationship administrivia.

Instead of whining about how bad they are, let's take the high ground and create a win-win environment by instituting a multistep "full-value vendor management program."



THORNTON A. MAY is a longtime industry observer, management consultant and commentator. Contact him at **thorntonamay@aol.com.**

STEP 1: Circle the Wagons

You have to lock down rogue IT spending and re-establish absolute control over dollars spent for IT. The chief financial officer can help you.

One of the biggest concerns IT leaders have regarding vendor management is "shadow IT" (i.e., vendors that sneak into the enterprise by going around IT-managed procurement processes).

STEP 2: Open The Kimono

Assuming you have a nondisclosure agreement in place, share with your entire vendor community your IT environment and strategy. If possible, share with them how you'll measure success and how much money you plan to allocate to various problem areas. Vendors spend a huge amount of effort trying to determine if a given problem area "has budget." Save yourself and them some hassle. Tell them.

STEP 3: Compartmentalize Your Vendors

A powerful insight emerging from new research on best practices is that there are two distinct approaches: "run the business" or "change the business." Seldom are both ways of applying best practices pursued at the same time within IT. But they should be.

In other words, I envision IT managers working with two sets of vendor teams. The first includes the vendors they pay to run today's business platforms ("run the business"). The second team of vendors is used for prototyping and problem-solving for the opportunity to deploy the next business platform ("change the business"). This two-track approach ensures that the incumbent vendor doesn't take the business for granted.

By following these steps, it's possible that vendor management won't be on your fix-it list in 2005. **43991**

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READERS' LETTERS

Records Managers Do Deliver Value

ACCORDING TO ANALYST Alan Pelz-Sharpe in the story "Records Management: A Neglected Discipline" [QuickLink 43004], "Nobody wants to do [records management] work. It's boring, and there's no ROI." That's because it's a specialty profession.

Lots of jobs are perceived to be boring and to have no ROI – by the people who don't do them. But those jobs are essential to organizations. Boring? Hardly. I am responsible for *all* of my company's information and records, regardless of physical form. And in this day of Sarbanes-Oxley, everyone suddenly cares about how that stuff is being retained. Records managers make the connections between parts of an organization. We know how the information fits together. And when the litigation hits the fan, we're the people who figure out what's needed to respond.

No ROI? My job is to keep vendors from allowing folks in my company to make the mistake of keeping everything forever. We reduce the volume of records being stored and ensure that records are destroyed regularly and in accordance with approved schedules. Having that consistency of program ensures that a company won't be accused of haphazard records destruction. That consistency helps to win lawsuits. Records managers want to do this work. We find it exciting, and we provide an ROI for our employers. For more information on records managers or records management, visit *www.ARMA.org.*

Patrick Cunningham, CRM
Corporate records manager, Brookfield, Ill.

Product Diversity Is Good for Security

THE ARTICLE "Cybersecurity Debate Heats Up" [QuickLink 43560] quotes Richard Clarke as saying that "if industries don't organize and require quality assurance standards in the products they buy, then they get what they deserve."

The problem is that the industry is so locked into a single vendor that companies have little credibility in "requiring" anything. Having bought operating systems, productivity suites and all manner of servers from a single vendor, they have a huge investment at stake.

Moreover, the software they've developed in-house or bought from third-party vendors is for the most part designed specifically to run on the primary vendor's operating system. Even Web applications, which shouldn't be dependent on a specific browser, often are crafted so that they won't work on diverse client platforms.

Customers and business partners of a locked-in company also incur a degree of lock-in, since extranet Web sites require the "right" browser and operating system.

The first step toward independence is to require developers to build applications that will run on a wider array of client platforms. This will cost more in the short run, but over time, it will increase customers' leverage and allow them to credibly demand improvements.

Rick Montgomery
Powhatan, Va.

IT'S IMPORTANT TO NOTE that no single product can solve regulatory shortcomings for an unprepared company. Compliance is a process, not a product, and IT departments that would like to control their own destiny – i.e., not risk getting their CIO thrown in jail by outsourcing to a company unfamiliar with specific business practices – need to perform due diligence, read the rules and do the research needed to tailor a compliant records environment. No two compliant environments are alike.

Analyst Alan Pelz-Sharpe's position that there is "no ROI" in records management also seems a bit shortsighted. What IT director wouldn't like to tell his CIO that he kept him out of jail? That sounds like quite an ROI to me. Plus, the implementation of a paperless office system and the elimination of archival file cabinets have saved thousands of dollars in rented floor space, paper costs and payroll. It doesn't take much creativity to tie a faster, more efficient information retrieval system into a nice ROI figure.

Bill Kouzi
Vice president of sales, LaserFiche Document Imaging, Long Beach, Calif., info@laserfiche.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

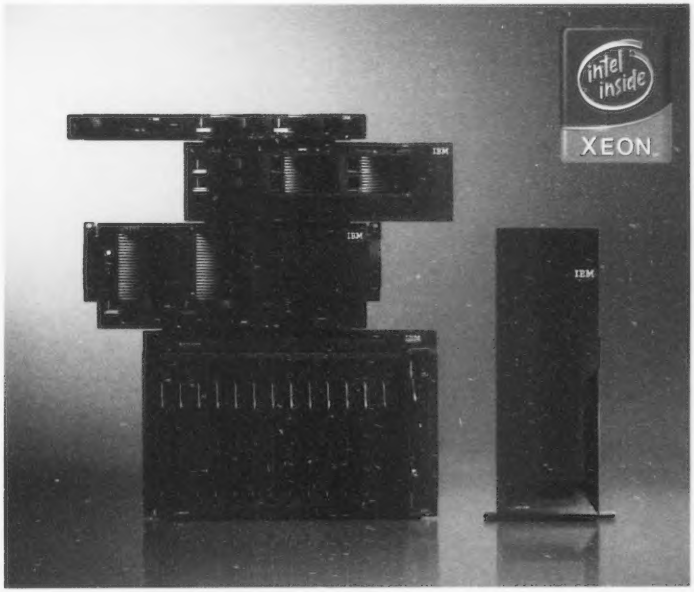
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[1] *CIO Insight*, a Ziff Davis Media publication, January 2003 survey of almost 500 IT executives. [2] Additional charges apply. Standard support includes next business day response in some countries.

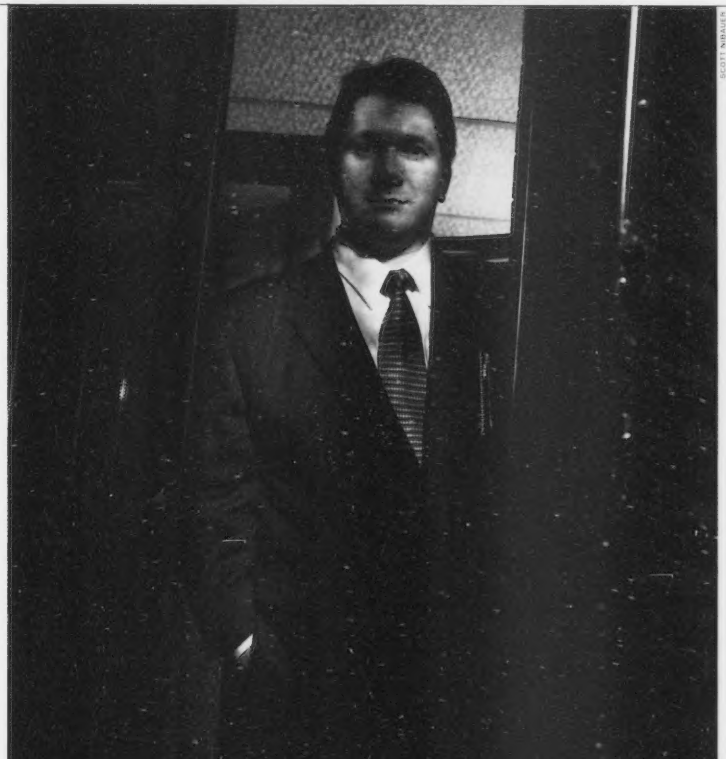
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SCOTT NIBAUER

TONY CATORE, director of the systems architecture group at the Philadelphia Stock Exchange: "We just reallocated 2TB of storage the other week. It took all of an hour to plan, and 15 minutes to execute."

Storage Virtualization GETS DOWN TO BUSINESS

Three case studies show how a unified view of storage resources can reduce application downtime and save money.

By Robert L. Scheier

STORAGE virtualization isn't new. It has been done for decades on mainframes, and almost every storage vendor claims to offer virtualization across at least some of its products.

By creating a single view of multiple storage devices, virtualization can simplify and thus lower the cost of storage management. It can also reduce the number of new arrays a company buys by combining data from multiple servers or applications into a shared pool of storage. That provides an alternative to buying more storage for one overtaxed server while disk space sits empty on the server beside it.

But storage managers need to remember that not all virtualization is created equal. In many cases, a vendor's virtualization offering works only (or works best) on its own hardware, while most organizations own storage hardware from many vendors. Some virtualization products work only on file-level devices, which store and retrieve information as files, while others work on the level of blocks (the smallest form in which data can be stored and retrieved on storage devices).

Some vendors tout the benefits of doing virtualization on the server, while a growing number claim it should be done on the "fabric" that links storage devices. But such technical arguments "typically focus on details where one vendor can differentiate himself from another," says Randy Kerns, a partner at Evaluator Group Inc. in Greenwood Village, Colo. He suggests storage customers develop a strategy around their near- and long-term business needs.

Users shouldn't look at virtualization as a product or a feature in its own right, but as an enabling technology to solve business problems, says Steve Kenniston, a technology analyst at Enterprise Storage Group Inc. in Milford, Mass.

For the fastest possible data backup, he says, a

company might choose to perform virtualization on a dedicated server such as a network-attached storage appliance that's optimized for serving up logical storage volumes. If a company wants to flexibly move data among, say, servers running different operating systems, it might instead opt for fabric-based virtualization in which switches linking the storage devices have the intelligence to reformat data as needed.

Similarly, a company building a new storage infrastructure has the luxury of choosing switches and software that support fabric-based virtualization from the start, Kenniston says, whereas one that has invested in expensive storage-area network (SAN) switches might opt for lower-cost, if somewhat slower, virtualization software running on a host.

Here's how three customers focused on the business problems and, as a result, are seeing the benefits of virtualization today.

Unused Terabytes

CUSTOMER: **Philadelphia Stock Exchange Inc.**
PROBLEM: **Unable to reallocate storage without unacceptable application downtime**
TECHNOLOGY: **Foundation Suite, Volume Manager from Veritas Software Corp.**

Virtualization has solved one big problem for Tony Catone, director of the systems architecture group at the Philadelphia Stock Exchange. But he has two more challenges he's hoping virtualization vendors will tackle, and soon.

The problem virtualization has eliminated is underuse of the terabytes of storage that were direct-attached to the stock exchange's application servers two years ago. It would have taken "days of planning and hours of downtime" to reallocate storage among critical servers, Catone says, so the exchange simply added more storage to each server as needed. That kept vital applications running but was inefficient because the exchange was buying new storage for some servers while storage sat unused on others.

By moving to Brocade switches, EMC Symmetrix systems and Hitachi Data Systems SANs, Catone has increased storage utilization from 50% to 75% and saved $500,000 by reassigning unused storage among applications rather than buying new disks. "We just reallocated 2TB of storage the other week," he says. "It took all of an hour to plan and 15 minutes to execute."

The SANs now provide storage for the stock exchange's Tier 1 transactional applications, as well as Tier 2 applications such as decision support. Tier 3 consists of archival data stored on tape. Next year, Catone says he plans to move the Tier 3 data to SCSI or Advanced Technology Attachment-based disk drives to provide relatively low-cost, but rapid, retrieval of archived data, since "there are times when we want to be able to [recover] data within 15 minutes or a half hour from five years ago."

The second capability Catone wants from virtualization is automated migration of 12TB of data among different storage systems based on preset criteria such as the age of the data, the capacity of the disks on which it's stored, or file or data type. He would like to see virtualization-based storage management tools that could perform this function instead of highly paid application developers and database administrators whose time could be better spent developing revenue-enhancing applications.

Automated, policy-driven migration would require virtualization to solve Catone's third problem: sharing storage among servers running different operating systems. He hopes that virtualization performed on the fabric of switches and other hardware in storage networks will eventually mask the differences between files used by different operating systems.

THE BASICS

STORAGE VIRTUALIZATION:

- Provides an abstraction layer that separates the user view from storage implementation
- Makes physical pathing, device characteristics and physical data location invisible to the user
- Provides location and implementation transparency
- Enables transparent, on-the-fly reconfiguration of resources
- Allows data location changes that are transparent to the host system

BENEFITS INCLUDE:

- Improved utilization of storage resources
- Reduced application downtime
- Simplified storage management
- Potential cost savings on storage assets

Improved Storage Prescription

CUSTOMER: **Denver Health Medical Center**
BUSINESS PROBLEM: **Underutilized direct-attached storage; need for seamless disaster recovery**
VIRTUALIZATION PRODUCTS: **IP SAN from LeftHand Networks Inc.**

Jeff Pelot has already seen the reality of virtualization, when he watched four Network Storage Modules (NSM) from LeftHand Networks come up as he installed an IP SAN at the Denver Health Medical Center.

"We plugged the things in, turned them on; they came up and recognized each other as a contiguous storage device, even though they were physically separated by a couple of buildings," recalls Pelot, the health care provider's chief technology officer.

The 3,700-employee hospital currently has a split environment of Fibre Channel SANs in the form of two Clariion products from Hopkinton, Mass.-based EMC Corp. They were purchased in 2001 and 2002 to escape the cycle of buying more disks whenever one of the medical center's 97 servers failed and to keep up with a 50%-per-year growth in storage demand. Pelot put 3TB of data from critical patient-care systems, as well as e-mail and other departmental applications, on the Clariions but kept a beta-testing relationship with Boulder-based LeftHand.

Although the Clariions provided more efficient provisioning and improved data protection and recovery compared with direct-attached storage, Pelot hoped IP SANs could provide similar performance at a lower price, as well as simplified management through virtualization. In early 2002, he became LeftHand's first customer, buying two NSMs for the hospital data center and two more for a network wiring closet.

"When I look at my EMC SAN, I have two frames, and they mirror each other completely. That doubles the cost to manage whatever storage I have," says Pelot. In contrast, the single console interface LeftHand provides is "very, very intuitive" and allows a single administrator to manage the EMC as well as the LeftHand environments, he says.

When the hospital provides him with more space in a new building, Pelot will use snapshot, remote copy and asynchronous replication to duplicate data between the NSMs in his current data center and the new, more secure location. "I don't have to duplicate my environment to still maintain high availability and disaster readiness," he says.

Pelot now has 5TB of raw capacity on the Clariions and 7TB on the IP SAN. In the future, he also expects to see clinical data "going to the IP SAN because it's more affordable and it's proving itself."

Application Acceleration

CUSTOMER: **Wasatch Advisors Inc.**
BUSINESS PROBLEM: **Underused direct-attached storage; poor application response time; need for cost-effective remote backup**
TECHNOLOGY: **SANsymphony from DataCore Software Corp.**

Virtualization hasn't reached its ultimate goal of automated, policy-driven data migration across storage devices from any vendor. But it was good enough to pay for itself within nine months for Wasatch Advisors. The Salt Lake City-based mutual fund firm was running approximately 500GB of direct-attached storage on its approximately 25 servers when it began looking for an alternative storage strategy in mid-2002, says CIO Dwight Ricks. With disk utilization at only 27%, Wasatch was buying much more disk than it needed. In addition, new compliance-checking software was slowing response time, as was the process of mirroring individual servers to an off-site location one by one.

In November 2002, Ricks purchased a Dell Inc. PowerVault 660F configured for RAID 10 mirroring with about 1.5TB of capacity. He chose DataCore's SANsymphony storage management software because of its performance and support of servers and storage from multiple vendors. Ricks is now using Fort Lauderdale, Fla.-based DataCore's asynchronous IP mirroring on-site, and by the end of the first quarter, he hopes to also be using it to mirror data off-site.

By placing storage on the Fibre Channel SAN, Ricks has reduced the performance hit from the compliance-checking application and improved response time for traders by 50%. Add that to the savings from making more efficient use of his disk space, and Ricks figures he made back his investment within nine months.

And by using SANsymphony's Dynamic Network Managed Volumes, he says he can set up and assign storage volumes "during production hours instead of having to come in on a weekend or late at night." To Ricks, virtualization means "I can do my job when I need to do my job, and it doesn't have any impact on the servers." **43718**

VIRTUAL DIFFERENCES

To read about the various approaches vendors take to storage virtualization, visit our Web site:

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NICHOLAS PETRELEY

Gazing Into the Cyber-Crystal Ball

IT'S TIME ONCE AGAIN to get out the cyber-crystal ball and make predictions about the near and distant future. But first, let's take a look at the scorecard from last year.

I predicted a big revival of interest in Java-based client applications over this year and the next. I still have another year for this to pan out, and my chances look good. I personally use a Java-based personal finance application and a Java-based text editor on a regular basis. There are hundreds of other types of Java-based client applications available, some of which are remarkably popular. The Eclipse graphical integrated development environment is possibly the most popular of all. It has been downloaded over 12 million times in two years. It has hundreds of available plug-ins, and the latest versions are winning awards left and right. Eclipse will even boast its own technical conference, starting this year (*www.eclipsecon.org*). There has also been an explosion of Java-based client applications for mobile phones and PDAs, although they're mostly games.



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I also predicted that Microsoft would back off its efforts to win the server market and refocus its attention on the home media center. I believe there is plenty of evidence to call this prognostication a bull's-eye, but since the evidence is mostly circumstantial, I'd be interested in whether you think this prediction is panning out.

My first prediction for this year is the same one I've been chanting for a half-dozen years or more: A network computing revolution is inevitable. I'm betting that network computing will run primarily on Java, but there's another possibility that dovetails nicely with the idea that Microsoft will continue to focus its efforts on storming the home market.

First, think of the obstacles that have prevented network computing from taking over the world. The problem cited most often is insufficient bandwidth. Put simply, networks, especially home Internet connections, can't handle the traffic required to support network computing, especially if you have to download entire applications to your client every time you want to do some work.

One way to minimize network traffic is to use a hard drive to cache applications and data so that a network computer client has to retrieve only whatever data has changed since the last time the client was used. Now think. What home media device has a hard drive installed by default (other than digital video recorders like TiVo)? The Xbox.

Of course, the only thing less likely than Microsoft endorsing network computing via a loss-leader device like the Xbox is Microsoft using Java for the applications. But one never knows. Perhaps by the time Xbox 2 ships, things will be different.

I'm going to go way out on a limb with my next prognostication. I predict that the usage of Internet Explorer will fall below 50% of Web surfers within the next three years, if not sooner. Internet Explorer is the Windows 3.1 of the browser world, software that has stagnated for nearly a decade because using it is easier than installing an alternative.

Alternatives like Mozilla, Opera Konqueror and Safari are getting light-years ahead of Internet Explorer in terms of usability and features. They're free (you can purchase a commercial version of Opera), easy to download and easy to install. Inertia counts for a lot among software users, but these advantages aren't going to escape their notice forever. That will be especially true when it becomes obvious that Microsoft is attempting to charge user subscription fees to get features like pop-up blocking — features already integrated into other free browsers.

It will be difficult to assess how well I do on this prediction, because it's so easy to set some alternative browsers to identify themselves as Internet Explorer to Web sites. But if Internet Explorer continues to fester untouched and this unthinkable prediction turns out to be true, remember you read it here.

Finally, I predict this will be the year SCO will go from laughingstock to penny stock. Ron Popeil will buy the company for $50 ($25 after rebate) and start selling a fake head of Darl McBride mounted sideways on a simulated wood plaque. The head periodically will turn to face you and utter hollow threats like, "The singing fish was my idea! I'll sue!" **44047**

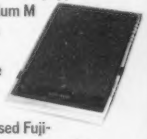
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BRIEFS

Fujitsu Introduces Widescreen Tablet

Fujitsu Computer Systems Corp. has introduced a new tablet PC. The Stylistic ST5000 features a 12.1-in. screen, built-in Gigabit Ethernet connections, a built-in smart card slot and optional Wi-Fi connections. It's equipped with an Intel Pentium M processor, and its standard battery provides up to five hours of use, according to Santa Clara, Calif.-based Fujitsu. The ST5000 comes in a slate format and has an optional docking system. Its base price is $2,049.



3Com Announces Ethernet Switch

3Com Corp. in Marlboro, Mass., last week announced the 3Com IntelliJack Switch JN220, a four-port managed Ethernet switch that fits into a standard single-port wall outlet. The product, formerly called the Network Jack, features enhancements over the previous version released in November 2002; they include voice support, new security and advanced management. It is shipping now and is priced at $219, with a Power Over Ethernet attachment for an added $29.

Corel to Launch Design Suite

A "smart drawing" tool and graphics placement guides are among the new features in Corel Corp.'s upcoming CorelDraw Graphics Suite 12, which will be released next month by the Ottawa-based company. The new tools are aimed at helping users produce business graphics faster using the main three applications – CorelDraw 12 for illustrations and page layout, Corel PhotoPaint 12 for digital imaging and Corel R.A.V.E. 3 for motion-graphics creation. The full version of the suite retails for $399; an upgrade costs $179.

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GORDON STUCKEY

Being an IT leader means communicating up, down and around the company. By Mark D. Lutchen

The CIO As Chief Communicator

OFTEN, EFFECTIVE communication skills aren't considered high priorities for CIOs. However, like any other major business unit in a company, the IT organization must effectively communicate on a regular basis with all of its constituents and customers.

Consider the case of a large North American food services company, where the communications function was very poor. Competing local IT groups rarely communicated with one another. And the little communication that took place with other constituencies was brief, often "IT-cryptic" and usually self-serving. Powerful IT managers intimidated their staffs, and any communication with those staffs was in the form of top-down directives, offering little chance for discussions about key issues.

Communication between IT leaders and the company's executive business-unit management was no better. Even when the IT organization had accomplished "great things" that it could brag about, IT leadership's lack of understanding concerning the power of marketing and communications ensured that nobody in the company was taking the IT organization seriously.

Fortunately, company leadership appointed a new CIO who understood the power of communication, both within the organization and between the organization and its constituencies. In the IT organization, he undertook a series of steps to open lines of communication from IT leadership to staff, from IT staffers to leadership and among IT staff, so they could more effectively meet their users' needs:

- He set up a series of open and candid "town hall" sessions across IT and with IT users and business-unit management teams.
- He established an open-door policy whereby anyone in the IT organization could communicate directly with him — face to face, over the telephone or via e-mail. Part of this policy was an open electronic forum (similar to a chat room) where individuals could — anonymously if they wished — pose questions to their colleagues or the CIO.
- He initiated a "no surprises" policy focused on encouraging people to communicate problems early and find solutions before the problems grew larger.

This CIO intuitively understood the power of marketing, even though he knew that he didn't have all of the skills required to create and deliver effective marketing messages. He brought a professional marketing and communications person into the organization to help him and others throughout the IT organization become more effective communicators among themselves, with users and with corporate managers.

Communication doesn't just happen. It requires confidence on the part of the organization's leader, and it requires professional assistance to tailor the organization's message for particular audiences.

The CIO must be comfortable sitting at the center of three communications channels or funnels (see diagram, next page). From this vantage point, the CIO facilitates communication between techies and executives in one of the funnels, between users and providers in another of the funnels, and between those inside the company and those outside the company in the third funnel.

To some extent, the CIO serves as the



BOOK EXCERPT **Adapted from *Managing IT As a Business***

By Mark D. Lutchen
John Wiley & Sons, 2003
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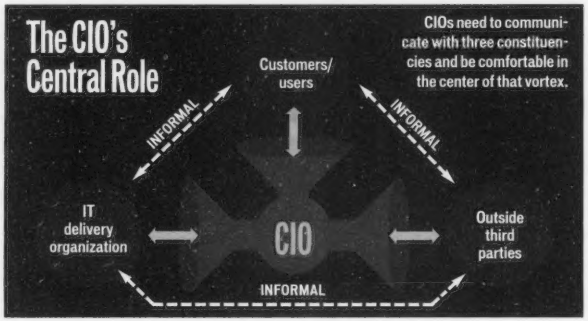
translator of IT information — sort of a Rosetta stone — among all the different parties. And the CIO must be able to alter the content-delivery medium and his or her communication style to suit each constituency.

A marketing and communications professional can help CIOs to not only craft their messages in terms that are meaningful to each constituency, but also understand how every one of their actions and behaviors communicates to the various constituencies as powerfully as their words.

From Captive to Willing User

Because everyone in a company uses IT, everyone is, in a sense, a captive of the IT organization. However, the goals of IT communications are to make users want to utilize IT services and to persuade them that the IT organization is a provider of high-quality, high-performance services of significant value.

To accomplish these objectives and create willing, rather than captive, users, IT leaders (with the help of communications professionals) need to take the time and effort required to craft messages that place IT activities and efforts in the proper context. Then they need to instill in every member of the IT organization the notion that carrying these messages in a consistent fashion to various constituencies, within and outside the company, is important and is a part of every person's job.



Too many CIOs and other IT professionals are comfortable running IT as a "black box" operation and communicate their activities on a need-to-know basis. However, if CIOs are to be invited to sit at the executive table, they must peel back the curtain and reveal how IT operates and articulate messages that help explain these operations and how they benefit the company. Transparency and open, candid communications are two ways to achieve that goal.

Communicating Like Business Leaders

To manage IT as a business, CIOs must learn how to communicate like business leaders. This means properly balancing honesty and integrity with a small dose of politics or "spin control."

Political leaders and constituencies, including the CIO and those who work in the broader IT organization, need to define how others in the company perceive them and their organizations. If they don't, others will do it for them.

At one organization I worked with, the CIO and IT staff were, from a technical perspective, among the best I've ever seen. Despite their skills, others in the company treated them as door mats and regularly subjected them to vicious tongue-lashings. Any time an IT-related problem cropped up, the highly qualified IT professionals became the scapegoats and were put on the defensive. They were disheartened and demoralized because they knew they were doing a good job. But the CIO and the entire IT organization didn't know how to get that message across effectively to the various constituencies.

The marketing/communications group persuaded the CIO to hold monthly briefing sessions with each business unit. He began to issue a marketing-grade, quarterly report on IT performance, services and projects. Within six months, the IT organization's image improved significantly within the company, and people within the IT organization began to believe they were recognized as real contributors to the company's success.

Framing the Message

Whether the message is delivered in a marketing, public relations or general communications format, it must be clear, consistent and meaningful to the intended audience. Communications should be linked, both explicitly and implicitly, to the company's business strategy, not merely to the IT strategy. IT's role in supporting and enabling that strategy should be woven into the IT organization's message. Because quality, cost and service delivery are the IT organization's key deliverables, messages should focus on how IT is progressing on improving these areas.

43815

PR TO THE RESCUE

Case study: A crisis PR plan reassured customers and employees after a catastrophic fire at a data center:

QuickLink 43817
www.computerworld.com

Three Ways To Spin It

A CIO SHOULD engage an IT organization communications professional to assist in crafting appropriate messages tailored to specific circumstances, audiences and purposes. Generally, corporate communications fall under one of the following three categories:

1. Marketing

Marketing messages are communicated through various media in ways that are attractive and appealing to specific audiences. They're crisp and brisk. Their purpose is to get the audience to accept the message quickly. For IT, marketing efforts seek to build awareness of the IT organization, of its attributes and of the role it plays in accomplishing the company's business goals.

Caution: Because of their tendency to produce technical solutions, many CIOs and IT organizations mistakenly focus on e-mail for marketing. In almost all cases, a more appropriate combination of media is more effective.

IT organizations can use marketing to build awareness of the services they provide, of current performance levels and of projects in progress. They can also use marketing to prepare various constituencies for changes to those services.

2. Public Relations

The field of public relations seeks to use "free media" to increase awareness of an organization and of the esteem in which it's held. When communicating to an internal audience, the CIO and all of the company's IT professionals must portray their activities as being "under control" from a performance, economic, organizational and management perspective. For example, the IT team should regularly use PR to tout 24/7 services and special projects.

Even the simple act of explaining mundane services such as help desk usage statistics can provide a PR message. Doing it with a spreadsheet sends a message: This is a techie organization. However, adding a little narrative spin, including some trend analysis and a few clear, color graphics conveys a different message: The IT group is able to measure things in a business-focused manner. Better yet, if the message is delivered in a formal briefing session rather than by e-mail, the CIO is seen as one of the company's leaders.

Public relations can also be used to deal with IT crises. In fact, in today's world, because IT touches just about everyone in the company, the manner in which IT crises are handled can make or break the CIO, the entire IT organization and perhaps even the company itself. Possible events that warrant the use of "crisis PR" include a merger or acquisition integration mishap, a catastrophic failure of a mission-critical application, a network or critical infrastructure failure, a significant security breach or unchecked virus attack, or a physical disaster.

3. Other Communications

Beyond marketing and public relations, other communications in which the CIO or other members of the IT organization engage include:

- Regularly issued (quarterly, semiannual and annual) operating reports.
- Formal organizational leadership meetings and conferences.
- Open forums, which can range from brown-bag lunches to e-mail bulletin boards.

One of the most effective communication tools I've ever encountered involved a CIO's regularly scheduled personal visits to local office locations. The CIO would engage in informal discussions with the IT organization's key customers/users and with business-unit management. In addition, the CIO took the opportunity to meet with local IT staff members to talk about the organization's overall strategy and to solicit their views and concerns. These were highly successful sessions because everyone involved derived something positive from them. As soon as the CIO would leave a location, staffers would be on the phone or writing e-mail trying to set up a date for the next visit.

The direct, personal approach of this CIO created substantial trust and credibility among users, business-unit leaders and IT staff alike.

– Mark D. Lutchen

BRIEFS

Retailer Outsources EDI Supply Chain

Tweeter Home Entertainment Group Inc. is outsourcing its electronic data interchange (EDI) supply chain to Global Exchange Services Inc. in Gaithersburg, Md. Tweeter, which has 174 consumer electronics retail stores, will use GXS's Logistics Visibility product to track orders and shipments, with the goal of improving the management of inventory, staff and supplier invoices, and other business processes.

Martha Stewart CIO Moves to Bluegreen

Bluegreen Corp., a Boca Raton, Fla.-based developer and marketer of time-share resorts and residential subdivisions, has hired Sheila Beauchesne, 38, as CIO. She will be responsible for the IT infrastructure, as well as all database and advanced marketing technology.

Beauchesne had been senior vice president and CIO at New York-based Martha Stewart Living Omnimedia Inc. since 1999. She has also held executive positions at the North American Rental Group of AutoNation Inc. and Blockbuster Entertainment.

Prudential Names Successor to CIO

Prudential Financial has named Barbara G. Koster to replace CIO William D. Friel, who is retiring after 16 years at the company. Koster joined Prudential in 1995 as vice president of policy administration and management systems and was most recently CIO of Prudential Individual Life Insurance. In that role, she oversaw the LaunchPad program, which provided laptops to Prudential's field force and enabled mobile access to product and customer information. In her new position, she will be responsible for IT companywide.


KOSTER

BART PERKINS

Offshore Mania

OFFSHORE OUTSOURCING is here to stay, since U.S. companies need to remain competitive in the world market. Responsible business people have to consider moving work to locations that offer the best combination of cost and service.

Unfortunately, the U.S. is in the midst of an offshore mania. The hype in the business and trade press (as well as that great executive opinion-shaper, the airline magazine) simultaneously causes and confirms this. As a result, a large number of companies are convinced that they must send *something* offshore to remain competitive and are further convinced that they must do so immediately.

In addition, many companies are feeling so pressured that they truly believe they don't have time to examine the questions necessary for success offshore. But companies that focus solely on the potential cost savings from going offshore, without careful evaluation of corporate motivations, business issues and trade-offs, will be unhappy with their offshore efforts down the road.


BART PERKINS is a managing partner at Leverage Partners Inc. in Louisville, Ky., which helps CIOs manage their IT suppliers. He was CIO at Tricon Global Restaurants Inc. and Dole Food Co. Contact him at BartPerkins@LeveragePartners.com.

No Shortcuts

Many companies are currently searching for the "right" offshore partner. But they aren't really in a position to determine which of the myriad offshore options best meets their needs unless they've established their sourcing requirements. This is most effectively accomplished through a process that examines the critical sourcing issues, which then leads to a deliberate sourcing strategy.

I've recently been approached by a number of companies that are interested in going offshore but that want to jump straight to partner selection and contract negotiation, without doing any homework. For example, a systems integration firm asked me to introduce it to an offshore company that could supply programmers and project managers. In order to determine which companies might be most appropriate, I asked the systems integration people several qualifying questions, including these:

- Which cost/service trade-offs are you willing to make?
- How much risk can your company tolerate?
- How will you make decisions and resolve disagreements with your offshore partner?
- How important is Software Engineering Institute certification? Does your company require CMM Level 5 processes?
- Do you have several low-risk projects that would make good pilots?

When faced with these questions, the systems integration people became impatient. They insisted they didn't have time to explore such questions, but needed to select a partner and sign an agreement immediately. (It's interesting to note that this well-established company would never dream of starting one of its own consulting assignments without a clear, well-written set of requirements.)

A Quickie Wedding?

This company reminds me of someone who desperately wishes to be married. With only that goal in mind, he rushes to a justice of the peace with someone he met a week ago at a dinner party, despite the advice of close friends. What do you suppose the odds on that marriage lasting will be? Such a brief engagement can result in a successful marriage, but the chances are extremely poor. Do you want to bet your company's future on the equivalent of a one-week engagement? And, by the way, just like divorce, leaving your offshore partner will be costly and painful.

I've had similar experiences with enough firms to convince me that the U.S. is in the middle of a full-blown offshore mania. Looking at the history of manias, from the construction of the railroads during the 1800s to the initial boom in automobile manufacturers to the Internet bubble, it's clear that they always end (sometimes spectacularly!).

The mania phase of offshore efforts will eventually end, too. At that point, companies will send work offshore only as the result of business decisions that have been well thought out. If you're currently feeling pressured to outsource or to send something offshore immediately, invest the time that this important business decision deserves and requires. Only then can you successfully leverage your sourcing decisions to select the right offshore option and design a partnership that will result in long-term success.

43975

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Office manager escapes clutches of desk



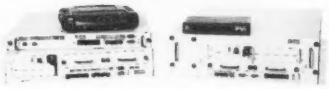
"At last I'm free, thanks to Nokia Mobile Connectivity solutions…and it feels great," exclaims Mary Langer, office manager.

"I thought I was imprisoned at my desk forever no hope of any release – but at last I'm free. No I can visit more suppliers, get better deals and wo whenever and however I want. Am I happy or an happy…," Mary enthused at her first taste of freedo Workers everywhere from CEOs to Account Manag are rejoicing today at thought of a real breakthroug their working lives. "Mob Connectivity from Nokia m I can make better use of waiting time at the airport," CEO, Don Baker; "which gives me more family when I get home." Even sales manager, John P was overjoyed as he realized his field sales team visit even more customers, now that they were a securely access company data while on the "They can check emails from home, at the off

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Farming Out IT Security
Outsourcing IT security functions can succeed, users like David MacLeod say, if you choose the right services and ask the right questions. PAGE 38



Security Begins at Home
Your network is only as secure as your weakest link — which might be your growing population of telecommuters. PAGE 42

EDITOR'S NOTE

SURE, THERE ARE *other* enterprise networking issues, including Gigabit Ethernet and voice over IP. But talk to network managers these days and they'll say the No. 1 thing keeping them awake at night is the prospect of security breaches, from hackers grabbing credit card numbers to viruses infecting thousands of desktop PCs. After suffering the worst year of malicious code outbreaks in the 20-year history of computer viruses, it's not surprising that network managers are spooked.

Surveys show that security is the top IT spending priority for this new year, and that's why we've focused this special report on network security. But instead of running the same old advice you've read a dozen times, we examined new areas:

- Some companies — figuring security isn't their core competency — are outsourcing security chores to managed security service providers. They provide experts who can stay on top of the latest vulnerabilities, but you've got to know how to manage the relationship.
- The technologies used to monitor and guarantee network quality of service are merging with security technologies — a powerful combination.
- The weakest link in your corporate network is that laptop sitting on a table at Starbucks or in a telecommuter's spare bedroom.

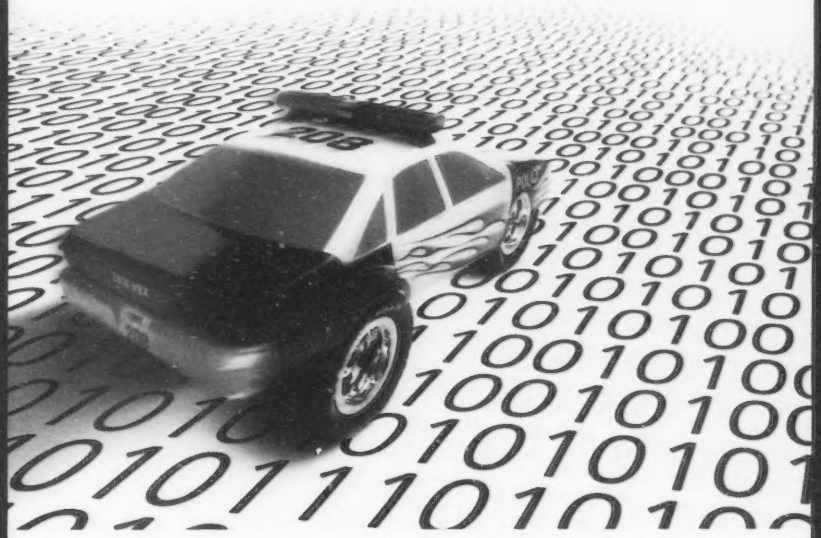
We hope there's something here that will help you plug the gaps and sleep better. And if you have trouble getting funds to pay for tighter security, be sure to read ex-CIO Doug Lewis' shrewd ideas for selling security to the CFO [QuickLink 41708]. **43813**

Mitch Betts is Features editor at Computerworld. He can be contacted at mitch_betts@computerworld.com.

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Farming Out Security

Outsourcing IT security functions can succeed, users say, if you choose the right services and ask the right questions. By Matt Hamblen



"I like the idea of one neck to grab," says Regence chief information security officer DAVID MacLEOD.

ROBBIE McCLARAN

MANY COMPANIES outsource some or all IT security responsibilities to a service provider. But IT managers who have been down this road say it's important to know what to outsource, what the conditions should be and how to set up the contract for a successful outcome.

Outsourcing IT security can work, many users say. Successful arrangements can lower security costs and make up for a lack of in-house expertise. Users disagree on some details, such as whether to use more than one managed security service provider (MSSP), but they also offer specific advice on dealing with liability issues, which services to outsource and how to hold vendors accountable.

"It's better to have one MSSP and to have done the due diligence to trust them — and you are trusting them a lot," says Jeff Nigriny, chief security officer at Exostar LLC in Herndon, Va. Exostar, an online exchange for the aerospace and defense industries, outsources some IT security functions to TruSecure Corp. in Herndon.

"I like the idea of one neck to grab," says David MacLeod, chief information security officer at The Regence Group, a Portland, Ore.-based health insurance firm that outsources security to Counterpane Internet Security Inc. in Cupertino, Calif.

More Than One Basket

But not everyone thinks the single-vendor approach is best. Eric Ogren, an analyst at The Yankee Group in Boston, advocates using more than one outsourcer to provide checks and balances and even recommends switching vendors every few years. "It is never good to have all of your security eggs in one basket," he says.

And even though he works at a security services provider, Joel Pogar, security practice manager at Siemens Information and Communication Networks Inc. in Boca Raton, Fla., says it's a bad idea to hand over all the keys to one provider. He says that's like having "the wolf watching the henhouse."

Customers often pick only one security outsourcer to save money, Pogar says, because outsourcing more security functions to a single provider tends to cost less than paying several vendors for the same services.

Pogar says customers are so worried about keeping costs down that they often use the outsourcer that handles password management and patch upgrades to audit their own work. "I strongly object to that," he adds.

MSSP contracts strictly limit liability. "I don't think there is any liability with the outsourcer other than me yelling at them" for network security breaches or other problems, says Bob Breeden, special agent su-

pervisor for the Florida Department of Law Enforcement in Tallahassee. Breeden uses TruSecure to provide alerts of a virus or new vulnerability.

"You won't get anybody to say they'll take responsibility if you have damages" from a security failure, adds Paul Prentice, manager of security and directory services at office furniture maker Steelcase Inc. in Grand Rapids, Mich. Steelcase outsources IT security to Ubizen Inc. in Reston, Va. The usual position of outsourcers, he says, "is more of, 'We'll work with you and provide monitoring and detection.' ... But that's the point where they draw the line."

Organizations do have alternatives beyond the limited liability that outsourcers offer, however. Nigriny says Exostar will get back no more than what it pays TruSecure for outsourcing should something go wrong in a given month. But he also has hacker's insurance to protect against losses in Exostar's internal network. And because he has outsourced to an MSSP, he receives a discount on that insurance, Nigriny says.

MacLeod agrees that an outsourcer's liability is limited, but he says his vendor was helpful when a problem came up. In 2001, Counterpane helped defend the credibility of Regence's security logs shortly after their outsourcing arrangement began, he says. Two Regence employees were fired for compromising the firm's network, and both filed wrongful termination claims. The former employees lost their cases partly because the security logs were accepted as evidence with the backing of Counterpane, he recalls.

To make up for liability limitations, Ogren suggests companies demand upfront that the outsourcer commit in the contract to reasonable staffing levels with qualified workers and to agreed-upon levels of responsiveness to security events.

Steelcase's Prentice says he scoured résumés of outsourcers' staffs in the selection process to help make up for the lack of legal accountability.

Who Handles What

Users and analysts say that outsourcing security duties such as the monitoring and management of firewalls and intrusion-detection systems (IDS) doesn't mean walking away from internal responsibilities. "You cannot outsource risk," says Ogren. "You should never outsource everything."

In a typical arrangement, the outsourcer should create guidelines for how involved the service should be, users say. In every case, they say the customer should initially maintain sign-off authority on security actions. Only when a security action becomes routine should the customer let the MSSP execute it without review.

Prentice warns against picking an outsourcer that sets up the decision-making process in a "very rigid and structured way." Steelcase and Ubizen have agreed on three levels of change control: standard, unusual and problematic. When changes are requested in the security infrastructure or policy that are labeled "problematic," Ubizen is saying, "You shouldn't do this because it will put you at risk." And at that point, Prentice is informed about the process. "I do get the ultimate sign-on with a security change, depending on the risk, and I decide what does this mean to the business," he says.

Deciding what to include in an outsourcing deal varies by organization. For example, at health insurer Regence, federal HIPAA requirements have led to an evaluation of what security tasks can be outsourced. "Because we are under HIPAA, I am the designated jailbird, so I'm not comfortable abdicating the protection of the electronic perimeter, our technology safeguards or administrative procedures," says MacLeod. "I'm not going to let somebody else do that." As a result, Counterpane monitors the perimeter but doesn't manage it without asking first.

Nigriny says no client in an outsourcing deal should ever give away security control of infrastructure pieces or anything of competitive advantage. "If you are an ASP and host applications, don't outsource security of those to an MSSP," he says.

Because security is a differentiating factor for Exostar, the company doesn't want to outsource security involving its online exchange to TruSecure. Instead, TruSecure provides monitoring, firewall and IDS management and maintenance for Exostar's corporate network but not its hosted applications. "The idea is that you want to carry out the management directives," Nigriny adds.

Earning Trust

Becky Autry, CIO at the U.S. Olympic Committee in Colorado Springs, says the outsourcing relationship can evolve, as the vendor proves its abilities. The USOC uses a broad spectrum of security services from AT&T Corp., partly because it's a small nonprofit and its IT staffers "wear a lot of hats," Autry says.

When the USOC started using AT&T in 2000, AT&T had to notify USOC staff before making any changes to network security, but AT&T now has the authority to make changes in the middle of the night without prior approval "if they see the potential for danger," says Autry.

Dan Klinger, manager of information security at Hershey Foods Corp. in Hershey, Pa., uses a Web-based auditing tool from Qualys Inc., an MSSP in Redwood Shores, Calif., but no other services. "We want to hold onto most security in-house, since we know our environment best and how to prioritize our vulnerabilities," Klinger says. "I'm not close-minded to the concept of outsourcing security, but overall I'm very cautious."

Users and analysts say the best way to ensure accountability with an outsourcer is to set terms in the contract that dictate how often and for what purposes reporting will take place and to then study those reports carefully.

Kelly Kavanagh, an analyst at Gartner Inc., adds that asking for Web-based reporting tools is also desirable for the capability to periodically scan the network perimeter to ensure that outsourced devices are configured correctly.

Some users set up their own monitoring tools. For example, Regence's security logs are generated by its own systems, and Regence employees periodically review security events to see how Counterpane handled them. MacLeod has a five-person staff that does audit and compliance checking. "They are my friendly hackers," he says. **43822**

10 Questions To Ask a Managed Security Service Provider

Before signing on the dotted line, experts suggest asking MSSPs these questions:

1. How do you take raw data from the network and correlate events to determine whether an attack is under way? Do you use off-the-shelf tools or your own technology?
2. May I see the résumés of the staffers who will be working on my account?
3. What staff screening and hiring practices do you use?
4. Do you have references from companies that are the same size as my company, in the same industry or in the same area?
5. How will you charge for services out of scope?
6. How will communications between organizations be managed?
7. What processes will be used to control access to devices and logs?
8. What auditing is in place for access/change control and reporting?
9. Do you provide phone or in-person support for security incident remedies?
10. What are your disaster recovery safeguards?

GRILLING THE MSSP

Tips for evaluating managed security service providers:

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Merging the two technologies gives users multiple lines of defense against network attacks. By Joanie Wexler

Security And QoS Unite



STEPHEN WEBSTER

UNTIL RECENTLY, quality-of-service and network security technologies lived in separate worlds. But they have something important in common. Certain types of attacks on network security affect application performance — and ensuring application performance is the main mission of QoS.

So the two technology camps have begun joining forces to stave off network attacks that degrade or halt network performance.

The enemies at the gate are worms, viruses, Trojan horse programs and denial-of-service attacks. These invasions rapidly replicate pieces of code or application service requests to the point where they overload a system's memory or CPU.

Firewalls and intrusion-detection systems (IDS) are typically used to identify unauthorized traffic based on known malicious bit patterns or limited parameters in an IP header. At the same time, sophisticated traffic-management capabilities — available as appliances and as software capabilities in network routers — recognize traffic based on application, protocol, user, media access control address, IP address and other granular variables.

Network implementers are recognizing common ground and the benefits of some integration work. For example, security and QoS products already tap common access control lists (ACL) for rules on how to treat traffic. And if further integrated, an IDS that discovers abnormal traffic patterns could alert a QoS system to treat that traffic according to those rules.

"The fact that firewalls, IDSs and QoS overlap gives you multiple ways to find and fight infections," says Joe Walton, a principal at VistaOne IT Services, a value-added network reseller based in Richmond, Va.

QoS's primary purpose is to manage the performance of multiple applications contending for bandwidth on a converged network link. To do this, QoS products identify what traffic is on the network, then classify and treat it according to the enterprise's network policy. For example, you could tune your network to "always allocate 20Kbit/sec. to Citrix," "limit streaming-media traffic to 128Kbit/sec." and "block all Kazaa traffic" to give the various traffic streams their appropriate due.

Once you have the power to identify and control traffic this way, you can apply QoS to also detect traffic anomalies, then set policies to automatically mitigate their effects. A firewall is a first line of defense, usually deployed at the WAN edge to permit or deny access based on ACLs. An IDS monitors packet streams in the background in search of traffic patterns that have already been identified as malicious — then alerts you if it finds one.

QoS can do a little of each function, while also enabling network forensics and immediate treatment of suspicious traffic, says Walton. "QoS helps you track down where an infection originated within your internal network. Then you can go back and alert that site that they are infecting everybody," Walton explains.

The University of California, Irvine, uses Packeteer Inc.'s PacketShaper QoS appliance in part for this capability.

"PacketShaper identifies where [an unnaturally large volume of] connections are coming from," says Ted Roberge, manager of residential network services. "I can block or shape those IP addresses down to a tiny amount of bandwidth to minimize the impact on network and server resources."

Larry Roth, vice president of Only-Internet.Net, an Internet service provider in Bluffton, Ind., has used Allot Communications Ltd.'s NetEnforcer QoS appliance in a similar manner: to fight viruses. "When Blaster came out on [TCP] Port 135, we put in rules and regulations for minimizing traffic that could use that port," explains Roth, who also uses firewalls and IDSs. "We saw an immediate 40% drop in Blaster being spread."

Oded Nahum, a senior systems engineer at Allot, says his company's gear has been used quite a bit by Internet service providers lately for handling network-aware viruses. "ISPs have such a broad reach, a virus can cause a lot of damage" if not checked, he says.

Interim Protection

QoS products often serve as "interim" defenses until viruses become known, IDSs are programmed to identify them, and patches are created and deployed on host systems.

Amir Khan, a director of product marketing at Cisco Systems Inc., says, "QoS plays a major security role here. When Kazaa [a peer-to-peer file-sharing application] hit enterprise networks, for example, it took many days to develop and implement patches."

Cisco's Network-Based Application Recognition classification engine, however, was able to flag Kazaa. Users could then decide to give it the lowest priority or drop it, he says.

Adding QoS to the security arsenal provides another line of defense against network attacks that affect performance. Meanwhile, further integration will enable QoS and security features to communicate with one another. When a network policy configured using one feature can trigger appropriate corresponding behavior in the other — capabilities likely to become available next year — this integration and automation will enhance and simplify the network administrator's ability to implement policy-based rules to manage network behavior. **43454**

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How Can QoS 'See' Encrypted Traffic?

IN ADDITION to mitigating the effects of network and host bombardments by viruses and denial-of-service attacks, traffic prioritization and encryption technologies will eventually have to exchange information.

Enterprises embracing voice over IP, for example, will someday extend the capability to remote branch offices and telecommuters to maximize their investments. Yet many remote sites need to traverse an encrypted WAN link, or virtual private network (VPN), to their headquarters site.

One challenge of merging QoS and security technologies is that, by definition, if a packet is encrypted, a QoS mechanism can't look deeply into it to identify and classify it. Encryption and QoS require integration. Otherwise, remote users will have to settle for either the security benefits of encryption or the performance perks of QoS, a choice that isn't likely to cut the mustard.

Early signs of progress here include a software capability in Cisco routers called V3PN, for "voice and video VPNs." This integrated QoS/security technology reportedly overcomes the challenge of IPsec VPNs. The feature copies QoS priority markings to the new outside IPsec tunnel header before transmission over the WAN.

Similarly, Proficient Networks Inc., a company that makes a route optimization appliance for dual- or multihomed Internet connections, recently enhanced its product with the ability to prioritize outbound network traffic by application type before placing it into an IPsec-encrypted tunnel.

– Joanie Wexler

SECURITY LEXICON

A glossary of terms related to security and network service quality:

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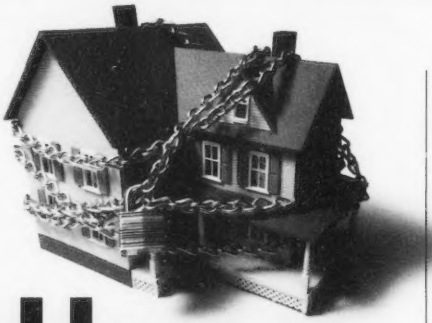
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Your network is only as secure as your weakest link — which might be your growing population of telecommuters. By Joanie Wexler

Security Begins at Home



STEPHEN WEBSTER

LIKE IT OR NOT, your corporate network will soon be everywhere — maybe even in some employees' kitchens or guest bedrooms. It might also reach into airports, hotels and McDonald's. Some users might even access the network from their local commuter trains.

Accompanying all this extended access, though, are heightened security risks. How do you mitigate them?

First, IT and executive decision-makers must define who should have access to what and set rules that govern user network-connection attempts. Then, IT can implement technology to enforce those rules in an automated fashion.

For example, Knowles Electronics LLC, a maker of microphones and receivers for the hearing health industry in Itasca, Ill., has a policy to restrict remote user access to servers hosting applications they actually need.

"We got hit with the Blaster worm when a home user tapped into a machine he didn't really require access to," explains Rich Dase, technology director.

For its international mobile workforce of about 200, Knowles uses services provided by Fiberlink Communications Corp., which installs virtual private network (VPN) encryption software, personal firewalls and antivirus software on user devices and centrally enforces security policies for the company. Knowles sets its own rules dictating the conditions under which users can connect.

"The policy might be that devices on dial-up connections must have a personal firewall configured a certain way and updated within the past three days," says Dase. "If Fiberlink doesn't discover those conditions when a user tries to connect, it rejects the access."

TEST YOUR KNOWLEDGE

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Protect Data in Transit

It's essential to use VPN encryption to protect data on a public network, says Dave Passmore, research director at Burton Group in Midvale, Utah. IPsec and browser-based Secure Sockets Layer (SSL) are the primary encryption technologies for avoiding data theft by eavesdropping, or "sniffing."

"SSL is clientless, so it is coming on strong. It also works great through NAT [Network Address Translation] routers, which, increasingly, employees are using at home," notes Passmore.

NAT translates private IP addresses into a single, globally unique IP address for routing across the public Internet. Passmore recommends NAT-enabled routers for telecommuters to mask their home computers' IP addresses from viruses and address-spoofers lurking on the Internet.

LandAmerica Financial Group Inc. in Richmond, Va., uses both SSL and IPsec for its remote workforce. "Using SSL, a home user only needs access to the Internet and a Web browser," explains Matt Matin, a security and systems engineer at LandAmerica. "IPsec requires special client software, but its strength is that it also works with non-Web-based applications."

Avoid Internet Infections

An oft-cited security challenge is the risk that remote devices will pick up viruses and worms from the Internet and then infect the corporate network.

Dase says his company is "trying to be more aggressive" about patching host software with vulnerability fixes as they become available.

Keeping up with patches is a must, but it can be a challenge. So host-based intrusion-prevention software and network intrusion-detection systems can work at corporate sites in the interim to ferret out unusual protocol behaviors and known malicious bit patterns.

In addition, "Truly paranoid people do not allow split tunnels for home users," says Passmore. Split tunneling involves a single home-user connection supporting both an encrypted tunnel for corporate network access and an unencrypted direct link to the public Internet. A more secure alternative is to route all remote-user Internet links through the corporate network.

But it can be costly to backhaul all traffic through the enterprise site. And the corporate firewall will need greater processing capabilities.

Passmore warns companies that allow split tunneling to make sure that the home computer has antivirus software and that it's up to date.

"Remote polling for this purpose is now a major part of the network manager's job," he says.

Telecommuting Security Gaps

RISK: **Data theft by sniffing data in transit.**
HOW TO FIGHT IT ■ Encrypt data in transit using VPN encryption technology, such as IPsec or SSL.

RISK: **Data theft by network break-in.**
HOW TO FIGHT IT ■ Give remote users access only to services they need. ■ Set strict password/authentication policies and enforce them.

RISK: **Data theft by stolen or lost computing device.**
HOW TO FIGHT IT ■ Encrypt highly confidential data on hard drives of key executives. ■ Enforce application- or device-level user log-on password protection.

RISK: **Worms, viruses and Trojan horse programs picked up from the Internet, then spread from remote devices to the corporate network.**
HOW TO FIGHT IT ■ Install NAT-enabled routers for home users. ■ Consider home Internet access via corporate connection and firewall (no split tunneling). ■ Install personal firewalls and antivirus software on home and mobile computers. ■ Update host-based software patches. ■ Consider host-based intrusion-prevention software.

Get Back to Basics

Enterprise use of effective password protection is crucial — but woefully scarce, "even though it's been 20 years since the movie *War Games*," says Lance Hayden, a manager in the Advanced Services for Network Security Practice at Cisco Systems Inc. His group conducts network vulnerability assessments for organizations to help them find and plug security holes.

Hayden is referring to the 1983 movie about a computer hacker who nearly starts a global nuclear war because of a lack of password protection in a military computer system.

Even though people seem to understand the need for password protection, "we continue to see remote access servers with no passwords or poor passwords that are easily guessed," says Hayden.

And user education about the importance of security and the basics of how to use it goes a long way.

Consider the notorious former Morgan Stanley executive who sold his BlackBerry device containing confidential information for $15.50 on eBay last summer. Cluing him in that removing the battery from the device wouldn't erase the data might have prevented the blunder.

In addition, implementing power-on passwords and encrypting any executive's stored confidential data so that it isn't comprehensible to anyone who inherits, steals, finds or — in this case — buys the device are good ideas.

43452

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The Almanac

An eclectic collection of research and resources. By Mitch Betts



Windows ATMs Raise Concerns

Diebold Inc.'s recent revelation that automated teller machines operated by two of its banking customers were struck by the W32/Nachi worm highlights a growing security concern about the move to Windows-based cash machines.

The outbreak of Nachi, also known as Welchia, required the unnamed banks to take down and patch infected ATMs before they could be safely brought back online, says Jim Merrell, director of global product marketing at North Canton, Ohio-based Diebold, a leading ATM manufacturer.

The security problems on ATM networks come at a time when many banks worldwide are migrating from an older generation of machines that used IBM's OS/2 operating system to Windows machines. The mass migration has been spurred by a number of factors, including IBM's decision to stop supporting OS/2 by 2006 and pressure from ATM vendors, says Ann All, the editor of *ATMmarketplace.com*, an online publication that covers the ATM market.

The advantages of Windows ATMs include built-in support for HTML and XML, as well as the fact that banks can create a consistent look and feel between home banking applications and ATMs. But security analysts predict that the move to Windows will almost certainly result in more disruptions from worms, viruses and hackers, because the Microsoft operating system presents more avenues for exploitation.

"The general-purpose operating system does everything. Unfortunately, that also means there's more bad stuff that could run on the computer," says Bruce Schneier, chief technology officer at Counterpane Internet Security Inc. in Mountain View, Calif.

Another issue is how fast security holes can be patched. ATM software is often upgraded via "sneaker net," with technicians physically visiting each machine for maintenance.

Diebold and other ATM vendors say they're "hardening" the installations of Windows they ship with their ATMs by disabling unnecessary services and ports and removing files that support peripherals. In November, Diebold and Sygate Inc. announced that Diebold ATMs will be outfitted with Sygate's firewall software.

But some vendors see ATM security as largely an internal IT problem. "When customers ask me [about ATM security], I tell them to talk to their network security people. They need to treat their ATM like other devices on their network and protect it," says Kent Schrock, director of marketing at ATM vendor Fujitsu Transaction Solutions Inc., a division of Fujitsu Ltd.

— Paul Roberts, IDG News Service

No. 1 by Far

Cisco dominates the enterprise network hardware market.

Cisco Systems Inc.	55.1%
3Com Corp.	4.7%
Nortel Networks Ltd.	4.2%
Hewlett-Packard Co.	4.1%
Avaya Inc.	1.3%

Market-share leaders, ranked by worldwide revenue.

SOURCE: IDC, FRAMINGHAM, MASS., NOVEMBER 2003

Patent Watch

■ A system for monitoring the reliability of networking equipment in the field. This "field availability monitoring system" is attached to switches and routers that have been installed at customer sites and sends an e-mail to the vendor whenever components fail or have a problem. The e-mail is transformed into a trouble log that can be analyzed for ways to prevent recurring problems. *— U.S. Patent No. 6,665,822, issued Dec. 16, 2003*
Inventor: Adam Michael Conway, at Cisco Systems Inc.

Digital Archives

50 YEARS AGO:

- Western Electric's No. 28 teletypewriter becomes commercially available.
- The Bell System puts a hands-free Speakerphone into limited production.
- AT&T offers a long-distance "Integrated Data Processing" service. Data from punched cards in Cincinnati is fed into a computer in New York.

20 YEARS AGO:

- A new AT&T Corp. and the seven Bell operating companies begin operations as separate entities after the AT&T divestiture. **43734**

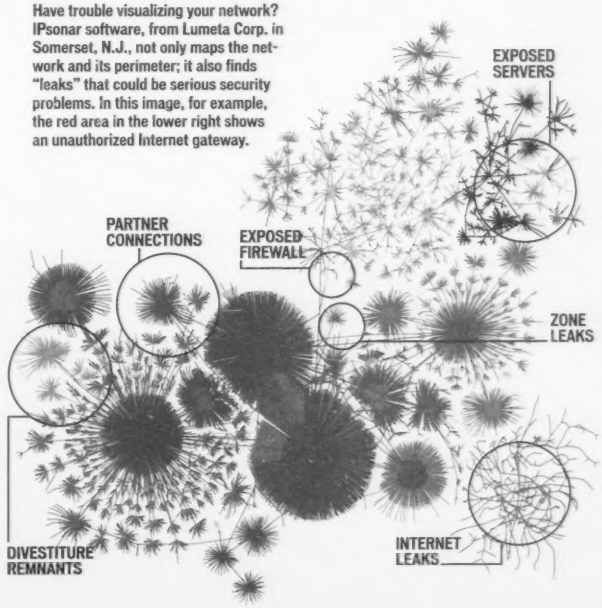
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Finding the Leaks

Have trouble visualizing your network? IPsonar software, from Lumeta Corp. in Somerset, N.J., not only maps the network and its perimeter; it also finds "leaks" that could be serious security problems. In this image, for example, the red area in the lower right shows an unauthorized Internet gateway.



Phishing

DEFINITION

Phishing is a technique used to gain personal information for purposes of identity theft, using fraudulent e-mail messages that appear to come from legitimate businesses. These authentic-looking messages are designed to fool recipients into divulging personal data such as account numbers and passwords, credit card numbers and Social Security numbers.

BY RUSSELL KAY

IN SHAKESPEARE'S *Othello* Iago says: "But he that filches from me my good name/Robs me of that which not enriches him/And makes me poor indeed." Unfortunately, technology and our ever-more-connected society now contradict the first assertion of that statement, because today, stealing another's good name can enrich the thief considerably.

QUICK STUDY

Identity theft is the name of the game. If someone can get vital authentication information, that person may be able to access another's bank accounts, charge accounts or credit information. In 1998, Congress passed the Identity Theft and Assumption Deterrence Act, which made identity theft a federal crime subject to as many as 15 years in prison. Still, identity theft flourishes, and one easy and increasingly popular way of capturing personal data is called phishing.

Phishing isn't really new — it's a type of scam that has been around for years and in fact predates computers. Malicious crackers did it over the phone for years and called it social engineering. What is new is its contemporary delivery vehicle — spam and faked Web pages.

Phishing (sometimes called carding or brand spoofing) uses e-mail messages that purport to come from legitimate businesses that one might have dealings with — banks such as Citibank; online organizations such as eBay and PayPal; Internet service providers such as AOL, MSN, Yahoo and EarthLink; online retailers such as Best Buy; and insurance agencies. The messages may look quite authentic, featuring corporate logos and formats similar to the ones used for legitimate messages. Typically, they ask for verification of certain information, such as account numbers and passwords, allegedly for auditing purposes. And because these e-mails look so official, up to 20% of unsuspecting recipients may respond to them, resulting in financial losses, identity theft and other fraudulent activity against them.

The Phishing Lure

Here's an example of how phishing works. On Nov. 17, 2003, many eBay Inc. customers received e-mail notifications that their accounts had been compromised and were being restricted. In the message was a hyperlink to what appeared to be an eBay Web page where they could re-register. The top of the page looked just like eBay's home page and incorporated all the eBay internal links. To re-register, the customers were told, they had to provide credit card data, ATM personal identification numbers, Social Security number, date of birth and their mother's maiden name. The problem was, eBay hadn't sent the original e-mail, and the Web page didn't belong to eBay — it was a prime example of phishing.

In September 2003, the Federal Trade Commission reported that 9.9 million U.S. residents have been victims of identify theft during the past year, costing businesses and financial institutions $48 billion and consumers $5 billion in out-of-pocket expenses.

In an online interview in July with *The Washington Post*, J. Howard Beales, director of the FTC's Bureau of Consumer Protection, said ID theft is the No. 1 complaint his organization receives, accounting for 43% of calls.

According to the Anti-Phishing Working Group, an industry organization started by Redwood City, Calif.-based Tumbleweed Communications Corp., most major banks in the U.S., the U.K. and Australia have been misrepresented to customers during phishing attacks.

Cutting the Line

Even before phishing became so prevalent, legitimate businesses and financial institutions would hardly ever ask for personal information via e-mail. If you receive such a request, call the organization and ask if it's legitimate or check its legitimate Web site.

Look for misspellings and bad grammar. While an occasional typo can slip by any organization, more than one is a tip-off to beware.

If the e-mail refers you to a Web site, look carefully at the URL. It's easy to disguise a link to a site. Beware of the @ symbol in a URL. Most browsers will ignore all characters preceding the @ symbol, so this Web address — *http://www.respectedcompany.com@thisisascam.com* — may look to the unsuspecting user like a page of Respected Company's site. But it actually takes visitors to *thisisascam.com*. The longer the URL, the easier it is to conceal the true destination address. Other ways to disguise URLs include substituting similar-looking characters, so that *paypal.com* could be (and has been) spoofed as *paypaI.com* or *paypaI.com*. Similarly, a zero can be substituted for the letter *O* within a URL. **43834**

Preventing Phishing Expeditions

To lessen the chance that a phishing attack on you will be successful, consider using digital signatures for outgoing communications so that recipients can authenticate the sender.

Also, a number of e-mail service vendors offer antispam products that address the phishing problem, including the following:

- Brightmail Inc., San Francisco, www.brightmail.com
- Cyveillance Inc., Arlington, Va., www.cyveillance.com
- Envisional, Cambridge, England, www.envisional.com
- MailFrontier Inc., Palo Alto, Calif., www.mailfrontier.com
- Proofpoint Inc., Cupertino, Calif., www.proofpoint.com
- Tumbleweed Communications Corp., Redwood City, Calif., www.tumbleweed.com

The Origins Of Phishing

The word *phishing* was coined around 1996 by hackers stealing America Online accounts and passwords. By analogy with the sport of angling, these Internet scammers were using e-mail lures, setting out hooks to "fish" for passwords and financial data from the "sea" of Internet users. They knew that although most users wouldn't take the bait, a few likely would. The term was mentioned on the alt.2600 hacker newsgroup in January 1996, but it may have been used earlier in the print journal *2600, The Hacker Quarterly*.

Hackers commonly replace the letter *f* with *ph*, a nod to the original form of hacking known as phone phreaking. Phreaking was coined by John Draper, aka Captain Crunch, who created the infamous Blue Box that emitted audible tones for hacking telephone systems in the early 1970s.

By 1996, hacked accounts were called phish, and by 1997, phish were being traded among hackers as a form of currency – people would routinely trade 10 working AOL phish for a piece of hacking software.

Adapted from material at www.antiphishing.org

Kay is a Computerworld *contributing writer in Worcester, Mass. Contact him at russkay@charter.net*

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For links to more information and anti-phishing organizations, visit our Web site:

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4:45PM SARAH VISITS DAD'S OFFICE 5:05PM SARAH DOWNLOADS FUNNYBUNNY.EXE 5:06PM NETWORK KILLS FUNNYBUNNY 5:14PM DAD TAKES SARAH TO KARATE PRACTICE

Sometimes threats don't look like threats. They look like your mobile workers, your sales department or your CFO's daughter. Even the innocent act of downloading a file—one that looks like any other, but is in fact corrupt—can create a costly security breach that can take your business off-line for days. So how do you defend against threats that take the shape of productive employees? A network with integrated security can detect and contain potential threats before they become actual ones. Whether they're worms, hackers or even well-meaning humans. Security that's about prevention. Not reaction. Visit cisco.com/securitynow to learn more. **SELF-DEFENDING NETWORKS PROTECT AGAINST HUMAN NATURE.**

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The top five types of networking investments planned for the next 12 months:

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2. Increased bandwidth
3. Wireless technology
4. Remote connectivity
5. Voice over IP

Base: Phone interviews with 200 IT decision-makers

SOURCE: AMR RESEARCH INC., BOSTON, OCTOBER 2003

Microsoft? Security?

Would you consider buying security products from Microsoft?



Base: Survey of 100 CIOs

SOURCE: GOLDMAN SACHS & CO., NEW YORK, NOVEMBER 2003

E-mail Overhead

The average amount of time that clerical users spend per week on the following e-mail tasks:

TASK	MINUTES
Searching	13
Printing	11
Filing and foldering	10
Sending and receiving	8
Spam control	5
Virus control	4

SOURCE: ESTIMATES BY FERRIS RESEARCH INC., SAN FRANCISCO, DECEMBER 2003

MARK HALL

Sticky Security

THE JOY OF WATCHING the old *Mission: Impossible* TV shows was in following the team of super secret agents as they laid a trap for the bad guy. The evil one inevitably succumbed to the lure set by the heroes through his greed or hubris, usually the latter.

That's the sort of thing that can happen with an increasingly popular network security technology called a honeypot. Although there are many types of honeypots, they all have the same purpose: to attract sophisticated black-hat hackers, malicious script kiddies and, more often than we care to admit, disgruntled internal employees into a highly protected system that emulates a production environment.

Once the bad guy enters a honeypot, his actions can be monitored, letting you know what kind of attack is imminent or under way. A honeypot can even be used to help trace an intruder back to his home base and maybe catch him red-handed, though that's seldom the goal.

The way a honeypot works is simple. You set up a server inside your firewall with software that can emulate everything from simple e-mail or file transfer protocol functions to a full-fledged operating system running a production database.

The trick is that none of your internal traffic is linked to the server. The honeypot is isolated from everything else. Absolutely no users are directed to it. So, by definition, anyone pinging, probing or prowling around the honeypot either typed in the IP address by accident or, far more likely, is up to no good.

"A honeypot is like a mousetrap," says Ryan Barnett, a senior security engineer at RS Information Systems Inc. in McLean, Va. "Anything you catch in it is a problem."



MARK HALL IS a *Computerworld* editor at large. Contact him at mark_hall@computerworld.com

Intrusion-detection systems, the security cousin to honeypots, which defend production servers against digital marauders, generate so much information about potential, real and, annoyingly, false problems that it's often difficult to sift through everything to see what bad things are going on. Augmenting an IDS with a honeypot would give you details about the nature of an attack and the best way to defend against it.

This is particularly true when a zero-day virus hits your network. Tracking its nasty actions on production systems can be time-consuming, because you need to filter out other activity. But in a honeypot, there's nothing else to track, so you'll know how the virus is wreaking havoc and more quickly learn how to squelch it.

There are drawbacks. First, just because you have a honeypot doesn't mean that a cracker will dip into it. Attacks could be happening elsewhere on your network, leaving your honeypot untouched because its IP address wasn't discovered and hacked. That's why you still need your IDS.

Another problem, of course, is the cost — not necessarily the price of the software, because some of it is free, or the hardware, which can be a simple Pentium machine, but in the manpower required to set it up. Building a high-interaction honeypot, which can emulate a complete network with multiple operating systems faking elaborate production operations, involves significant overhead.

There's also a bit of risk. If you go with a high-interaction system and overlook a detail or two in setting it up, you can actually give the intruder too much reality and allow him to slip onto your production network.

That's why Symantec's John Harrison, who has written about honeypots for *Computerworld.com* [QuickLink 42910], advises users with high-interaction honeypots to set up their systems so that they immediately shut down when an attacker's activity reaches a certain threshold.

Then there's the legal quagmire. If you're watching an attack that involves moving packets in and out of your honeypot from innocent computers that have been hijacked and you look inside the data or payload of the packets, you *might* be violating privacy laws. There are no legal precedents here, so it's wise to establish and publish policies that tell the world that it is your standard procedure to sniff packets on the network.

Some critics also suggest that a sophisticated black-hat hacker won't fall prey to a honeypot. They argue that you'll catch only script kiddies and internal malcontents. Perhaps. But thwarting either of those types of invaders is hardly a bad thing.

For the vast majority of users, low-interaction honeypots are the best approach. The investment and the risks involved with high-interaction honeypots are too high, especially since you may not nab the most malicious prey. But the payback for low-interaction systems is well worth it.

As more honeypots get deployed, intruders will have to wonder whether they have actually hacked something useful or are fruitlessly pawing inside a honeypot. That itself can be a deterrent. Like knowing that the Impossible Mission Force is out there, ready to spring its trap.

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Advertising Supplement

Diversity in IT: Professional Groups Set Goals

Whether it's a job outlook report, survey of employers of choice or annual leadership agenda, the goals for diversity in the information technology profession are similar. What differs is the context – the cultural issues and situations that confront people considered "diverse" when they seek education and careers in IT.

For instance, if you ask the Black Data Processing Association, American Indian Science and Engineering Society and Society of Hispanic Professional Engineers who the top employer is, the answer is the same: IBM. The reasons vary by the mere definition of diversity. "IBM is at the cutting edge in terms of recruiting and professional development for American Indians," says Teresa Gomez, acting executive director for AISES. She points to specific programs, including the Jan. 12 recruiting event IBM hosted at Santa Ana Pueblo in New Mexico. It doesn't hurt that IBM has leading executives who are Black, who are American Indian and who are Hispanic.

Raul Cosio, chair of the Hispanic Diversity Task Force at IBM since it formed in the mid-1990s, says the company's record has improved over the past decade, but more remains to be done. IBM, as a predecessor company, hired its first women and African-American in the late 1800s, so the foundation has been in place. "In the past decade, the number of Hispanic employees has grown by 50%. More importantly, when you look at the senior leaders and executives, the number of Hispanics has grown by better than 100%."

While IBM views such diversity as a business imperative, Cosio is an example of how the system works. Now the head of the aerospace & defense practice for IBM, Cosio spent two assignments in Latin America. "While that was helpful in working with employees, it was critical in working with customers," Cosio says.

In addition to building relationships with Hispanic-oriented universities – such as University of Texas-El Paso, University of Puerto Rico and Florida International University in Miami – the company has aligned executives as partners with Hispanic organizations that include the Society of Hispanic Professional Engineers and the National Society of Hispanic MBAs. Cosio points to a crisis level of Hispanic high school dropouts as the reason for extended family and K-12 programs, such as La Familia Technology (supported by the Information Technology Association of America, SHPE, IBM and other corporations to link Hispanic families to technology for assistance in life and education) and more than 3,000 IBM employees who serve as mentors for kids and their teachers.

IBM Employment Data for U.S. Locations, 2002

	Total	Men	Women	All Minorities	Black	Asian	Hispanic	Native American
Officials/Mgrs	18,015	13,027	4,991	2,760	1,095	1,022	566	78
Professionals	62,140	41,420	20,720	15,037	4,765	7,325	2,616	331
Technicians	13,066	11,561	1,507	2,794	1,070	798	852	74
Marketing	40,697	29,077	11,620	9,573	2,975	4,952	1,457	189
Office/Clerical	6,670	1,545	5,125	2,293	1,560	208	466	59
Craft Workers	1,687	1,028	659	342	130	125	83	4
Operatives	3,425	2,053	1,372	1,057	312	496	236	13
Totals	145,705	99,711	45,994	33,856	11,907	14,926	6,275	748

Milton Haynes, outgoing president of BDPA, says his group has set as its goal to increase the number of Black IT professionals, and to increase the number of BDPA members from 3,000 to 25,000 by 2006. Currently, there are 300,000 African-Americans employed as software developers, business analysts, testers, project managers and IT executives/consultants. BDPA's top three objectives are to build and strengthen the minority community's proficiency and effective application of information technology; to affect a just level of minority participation at all levels of the IT industry's employment and business opportunities; and to become a powerful voice that represents the interest of minorities in the IT industry.

AISES too has growth as an agenda. With 3,000 members, AISES reports that 1% of the country's science and engineering workforce is American Indian. The goals are quite different, as the organization seeks sustainability, growth of professional development programs, and extension of technology into the mostly rural communities. "Culturally, we are brought up to return to and give to our communities," Gomez says. "That makes it difficult for those in science and engineering professions."

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Software Engineer (with Bachelors degree and 3 years experience or Associates Degree and 5 years of experience) - Columbus, OH. Job entails and requires experience in installation and implementation of Oracle Applications (GL, AP, Fixed Assets and Project Costing), and experience in the design and development of commercial applications using PL/SQL, Shell Scripts, Unix and NT. Relocation within USA Possible. Attractive compensation package. Send resume to Priya Venkat, Technology Software Inc., 1515 Bethel Rd., Suite 304, Columbus, OH 43220.

Systems Management Design Engineer: wanted by a telecommunications corporation located in Miami, FL. Applicants must have a Bachelors degree in industrial engineering or management information systems or related engineering field or foreign academic degree equivalency and must have 2yrs. of experience in the job duties. Mail resumes only to 5225 NW 87th Avenue #100, Miami, FL 33178, Attention: Freddy Sidi.

Principal Software Engineer to serve as snr level technical contributor to team in development & architecture of wireless trading applications. Will use Java, WML, HDML & XHTML languages to further enhance wireless trading application & platform across all networks and devices; develop a web-based Stock Plan Services resource center in Java & Websphere platform; work on multiple projects concurrently and develop on multiple platforms; provide technical leadership/training to jnr team members; perform independent technical analysis on complex wireless development projects; perform code & unit testing for complex scope modules & projects, and will be responsible for directing & monitoring the work of team members for project completion/user satisfaction. Requires BSc or equiv in Computer Science, Eng, Math or Physics plus 3 yrs in job offered OR 3 yrs exper developing web or wireless applications. Alternatively, MSc or equiv in CS, Eng, Math, or Physics plus 1 yr in job offered OR 1 yr exper developing web or wireless applications. Candidate must also possess demonstrated expertise developing wireless real-time applications in JAVA, WML, HDML, and XHTML; demonstrated expertise architecting wireless financial trading applications including phones, PDAs & pagers and demonstrated expertise developing web applications in Oracle database environment. Sal: $76,588/yr, M-F, 9A-5P. Send 2 resumes to Case #200203271, Labor Exchange Office, 19 Staniford St., 1st fl, Boston, MA 02114. EOE. Applicants must be U.S. workers eligible to accept full-time employment in U.S.

JE Matadi is a leading fashion firm with over 3000 customers in North America. Our company currently has opening for the following:

Systems Analyst: Design, develop, implement and support client-server & Internet based programs for ERP packages, asset management, sales force automation and E-commerce. Integrate Technologies in core SAP R/3 includes, Electronic Data Interchange, Workflow, Business Connector and Web Application Server; Oracle 8i, .NET and Visio, Biztalk, Business Objects, web intelligence, Erwin, Office Master system and UNIX. Requires Bachelor's degree in Computer Science or Engineering and 2 years of experience.

Send resume to: Attn: Recruiter, JE Matadi Dress Co, Inc., 11400 S. Sam Houston Pkwy W. Houston, TX 77031, or email to: careers@jematadi.com

Seeking qualified applicants for the following positions in Memphis, TN: Senior Scientific Programmer. Design and develop scientific programming applications using logical and mathematical solutions in support of operations research. Requirements: Bachelor's degree or equivalent" in computer science, operations research, engineering or related field, plus 2 years of experience in programming in a scientific environment. Education must have included coursework in operations research, management science or related field. Education and/ or experience with development of relational databases in MySQL, web applications using Perl/CGI, and object-oriented applications using Visual C++ with STL also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Michael Umlauf, Federal Express Corporation, 3680 Hacks Cross Road, H-2220, Memphis, TN 38125. EOE M/F/D/V.

Computer Professionals

IT Co. in New Castle, DE has multiple opening for S/ware/ Systms Enggs/Prog Anlysts w/foll. skill sets in Windows/UNIX:

1. Java Technologies (EJB, J2EE, BEA Weblogic, JSP, Applet, Servlets, JDBC etc.); Oracle/SQL databases (Job Code # EE03)

2. J2EE, Web Services, Wireless technologies, Palm, Multimedia, Dreamweaver, Flash, Photoshop, Illustrator, Oracle (Job Code JJ03)

3. DHTML, JavaScript, ASP, JSP, PHP, CSS, Cool Edit Pro, Ultradev, Flash, Photoshop, Pagemaker (Job Code #MM03)

4. Delphi, Power Builder, ASP, XML, MS SQL Server (Job Code QQ03)

5. Data Warehousing, Informatica, MicroStrategy, Brio, Oracle, PL/SQL, TOAD, ERWIN, Shell Scripting (Job Code PP03)

6. PeopleSoft 8.x technical and functional knowledge (Job code RR03)

Req Bach./equiv. & 1-3 yrs exp. or training in job duties. Will accept any comb of edu. training &/or exp that meets min reqmnts. Must refer to Job Code when applying. Send resume to: Insyst (DE), Inc., 42 Read's Way, New Castle, DE 19720-1649. Fax: 302-323-8105. Email: jobs@insystus.com.

Senior Hardware Engineer will perform board design and verification. Will develop test plan to verify the formality and integrity of a complex optical-electrical 10G bit processing card. Will write hardware-based Verilog/ C++ to implement a fully automated verification procedure to test the functionality and connectivity of the board. Will use tools to set up a robust simulation environment to execute the test plan. Will develop generic methodologies for optical-electrical system design verification. Requires Master of Science or equivalent in Electrical Engineering, or Computer Engineering and five (5) years experience in job offered OR five (5) years experience in FPGA and board design and verification in the telecommunication industry. OR, in the alternative, Ph.D. or equivalent in Electrical Engineering or Computer Engineering and three (3) years experience in job offered OR three (3) years experience in FPGA and board design and verification in the telecommunication industry. Candidate must also possess demonstrated expertise in design tools including Synopsis, VCS and Design Compiler; and demonstrated expertise in transactor-based verification technology including Verilog, PERL and C++. Salary: $96,866/yr, M-F 9AM-5PM. Send 2 resumes to Case #200202948, Labor Exchange Office, 19 Staniford St., 1st fl., Boston, MA 02114. EOE. Applicants must be workers eligible to accept full-time employment in U.S.

Sr. Programmer Analyst/ Software Engineers needed. Seeking candidates possessing MS/BS or equivalent and/or relevant work experience. Part of the req. rel. exp. must include 2 years working with Visual C++, Visual Basic, Oracle and SQL Server. Mail resume, references and salary requirements to: Global Cynex Inc., 501 Silver Side Road, #98, Wilmington, DE 19809.

We have openings for the following positions to work at the client site throughout the United States. Send resumes to: Webient Technology Inc., 259 A Main St, Suite#5 Nashua, NH 03060.

Java Programmer Analyst: Design and develop software applications using Java, JDBC, J2EE Websphere, Tomcat and XML. Perform object-oriented methodologies and problem diagnosis.

Websphere Architect: Websphere Server administration with experience in multi tier production environment using VANTAGE-ONE, UDB, Java, JDBC, JFC Swing, Websphere and XML. Responsible for maintenance and support of Websphere server infrastructure.

Visual Basic Programmer Analyst: Design, develop and test software applications using SQL Server, VB, ASP, .NET and Crystal Reports. Involved in trouble shooting, query optimization, testing and production support.

Mainframe Programmer Analyst: Analyzing the business needs, writing the technical specifications and testing the application using Cobol, DB2, CICS, File-Aid and MVS/ESA. Must be able to Performance Tune, Trouble-shoot and production support.

Oracle Software Engineer: Design, develop and customize application software using Oracle tools. Develop and impleiment strategies while keeping the application understandable. Sol-ving system issues and performance tuning.

Network services and infrastructure analyst: Design, manage, LAN/WAN infrastructure. Experience in Telematics, Nortel, Cisco switches and routers, X.25, Framerelay, VSATs, T1/64k circuits, Sniffers, Unix, NT to 2000 migration, AD, Citrix XP, ISA, Exchange 2000 migration, LANDesk.

UNIX Systems Engineer: This position involves the analysis and proposal of system hardware, software, and system solutions for centralized HP-UX, AIX and NT enterprise-class computing platforms, running SAP applications in an Oracle environment.

DB2 Database Administrator: Install and maintain IBM DB2 on Z/OS/ systems. Configure, implement and maintain DB2 Subsystems and Databases. Establish database security procedures for DB2 systems. Monitor and tune performance of DB2 Databases.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Technical Analyst: Research, evaluate, implement and coordinate changes to large, complex computer systems/applications. Requirements: Bachelor's degree" in computer science, math, engineering or related field plus 5 years of experience in systems/applications development, including programming. Experience with C and/or C++, Java and Unix also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Systems Analyst (with Masters degree and 1 year experience or Bachelors with 6years experience) -Williamsport, PA. Job entails and requires experience in design, development and implementation of applications using Oracle, SQL Server, VB, C, VC++, ASP/IIS server, COM/DCOM and ADO. Relocation within USA possible. Attractive compensation package. Send resume to Supriya Palayekar. Palayekar Companies, Inc., 1959 East Third Street, Williamsport, PA 17701.

Tech. Arch. to develop software arch. with AOP for company products including 'Symphony', lead developers, tech. leads, & biz. analysts to deliver/ deploy software; formulate appln. comm. framework (JMS/WS), XPDL engine, biz. Intell. framework, biz. Model framework (MDA/BPEL), CDA, and Struts UI Framework. Inputs into PM & biz analysis to streamline arch. & meet client reqs., look at new tech. & integrate tech. to company products; design in-house products using J2EE, JMS, Java Web Services, XML Tech. as XSL, XSLT, JAXB and XPATH, Java Security API, JDBC, JNDI. MS in CS or Electrical Eng. (or eq.) + 2 yr. program exp. In Java and OOAD. Comp. salary. Apply: Core Concept 1050 Crown Pointe Parkway, #1405, Atlanta, GA 30338 with proof of perm. Work auth.

SENIOR SYSTEMS INTEGRATION ENGINEER

Witness Systems, Inc., a Developer of Client/Server Monitoring Software, seeks a qualified Senior Systems Integration Engineer for Bloomington, IL location. Must have a Bachelor's degree or foreign degree equivalent in Electrical Engineering, Computer Engineering, or related field plus 2 years of experience in the position offered or 2 years of experience in operating systems administration, database administration, and programming. Salary and benefits commensurate with experience. Send resume to: Sheri Mattison, Employment Manager, Witness Systems, Inc. 300 Colonial Center Parkway, Roswell, GA 30076.

Euro Solutions Group dba e:Solutions Group seeks Senior Software Engineer for our Shelton, CT loc. Assess business flows, analyze, set-up + support Oracle Applications Modules for local + multi-national enterprises. Plan, dev + perform user training. Project lead + maintain Apps throughout project life-cycle. Re-engineer processes + remove redundant activities, reduce tech. risk, improve stability and data integrity, expand systems flexibility + leverage built-in integration of Apps. Work with Global Accounting Engine, Global Intercompany System, Multiple Reporting Currencies, + Workflow. Must have BS in Computer related field + 5 yrs relevant exp. Resume to e:Solutions Group, H.R. Dept. 13010 Morris Road, 6th Floor, Alpharetta, GA 30004.

Programmer Analyst needed for IT consulting firm in Burlington, VT. Job duties: Analyze, develop, test and document client/server and web-based computer applications for clients throughout the eastern U.S. Evaluate user requests for new/modified programs. Use Oracle, JAVA, Interwoven to perform tasks. Work as part of a team under direct supervision. Applicant must have B.S. degree in Computer Science, Business, Mathematics or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which includes the skills listed above. 40hrs/wk, 9:00 am-5:00 pm, Mon-Fri, $52,936/yr. Send resume & cover letter to: Vermont Dept. of Employment & Training, Job No. 612548, P.O. Box 488, Montpelier, VT 05601-0488.

Seeking qualified applicants for the following positions in Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent* in computer science, business, math, statistics or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with Java or C++; development of n-tiered object-oriented applications; and either Cobol, DB2 or CICS also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Programmer Analyst needed for IT consulting firm in Burlington, VT. Job duties: Analyze, develop, test and document client/server based computer applications for clients throughout the U.S. Evaluate user requests for new/modified programs. Use Oracle, JAVA, ATG, Interwoven to perform tasks. Work as part of a team under direct supervision. Applicant must have B.S. degree in Computer Science, Business, Mathematics or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which includes the skills listed above. 40hrs/wk, 9:00 am-5:00 pm, Mon-Fri, $52,936/yr. Send resume & cover letter to: Vermont Dept. of Employment & Training, Job No. 612515, P.O. Box 488, Montpelier, VT 05601-0488.

Database Administrator - Coudersport, PA. Prepare/ maint. physical & logical dsgn of Oracle db structure. BS in Comp. Sci./Engrg, MIS or Electr. Engrg (or equiv. of Assoc. deg. in same fields + 4 yrs exp. as DBA or Comp. Professional) + 3 yrs exp. in same occupations rqd. Must have exp. w/Oracle, Sybase & Unix. Send resume to: Eileen Donahue, Dir. of Recruiting, TelCove, 712 N. Main St., Coudersport, PA 16915.

Database Administrator w/exp to install, upgrade & maintain DB2 & Informix database under Solaris, AIX, Linux/Win. Provide database monitoring & reporting using Tivolitools-DM, ITM, ITMD & TEC. Perform installation & configuration of backup & recovery processes for RDBMS using Tivoli Storage Manager. Perform capacity for planning for enterprise databases using (TEDW). Send resumes to: Virpie, Inc. 925 Oronoke Road, Suite 24-D, Waterbury, CT06708.

Software Engineers & Programmers: (1) Analyze, design, develop, implement, test & support software specialized apps. in Client - Server & AS400 [J2EE & related tech., Rational Rose, RMI, CORBA, Iona Orbix, Weblogic Server, XSL, Oracle & related tools, CL 400, RPG 400, DB2 400]. (2) Analyze, design, develop, test & support middleware & front end web based and back end apps. in J2EE & related tech., C++, Weblogic, IIS, Iplanet, NetScape Enterprise & Borland Apps. Servers. Send Resume to attn: HR, 3761 Venture Dr., Bldg. 100, Suite 240, Duluth, GA 30096.

Programmer-Analyst to dvlp s/ware using C#, VB.Net, ASP.Net, VB, Crystal Enterprise, Web Services, XML, XPATH, XSLT, SOAP, Remoting, Oracle Forms & Reports, SQL*Net, SQL*Menu, Oracle app server, WebDb, MTS, COM, COM+, DCOM, ActiveX, IIS, ASP, Javascript, DHTML, VBScript, MS Access,SSL on Win & Unix OS, DB dev with Oracle & SQL Server. Data access using ODBC, RDO, DAO, ADO & ADO.Net. Perform DBA & data loading activities in Oracle & SQL Server. Use CASE tools such as Visio & ERWIN. Send resume to: American Valet Svc. Attn: M. Petruzzelli, 23 Pineridge St, Melville, NY 11747.

Programmer Analyst wanted by Culinary Arts College in Hyde Park, NY to plan, dvlp, test & administer comp prgms using VB, COBOL & Oracle PL/SQL. Determine systm performance reqmts & architecture. Must have Bach in Comp Sci, Math or closely related & 2 yrs exp. Respond to HR Dept., The Culinary Institute of America, 1946 Campus Drive, Hyde Park, NY, 12538-1499.

SYSTEMS ENGINEER

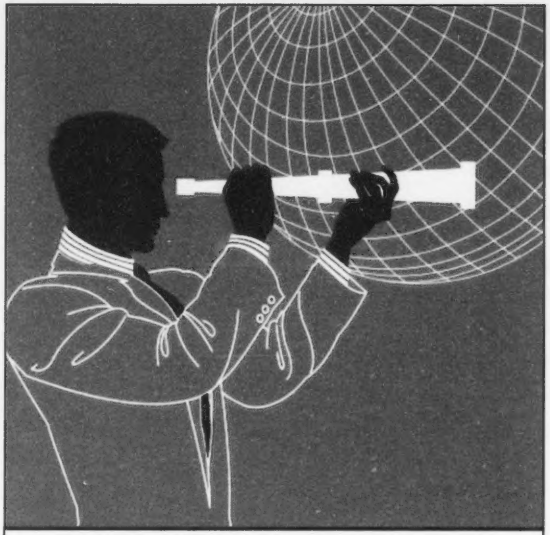
Witness Systems, Inc., a Developer of Client/Server Monitoring Software, seeks a qualified Systems Engineer for Bloomington, IL location. Must have a Bachelor's degree or foreign degree equivalent in Electrical Engineering, Computer Engineering, or related field plus 2 years of experience in the position offered or 2 years of experience in operating systems administration, database administration, and programming. Salary and benefits commensurate with experience. Send resume to: Sheri Mattison, Employment Manager, Witness Systems, Inc. 300 Colonial Center Parkway, Roswell, GA 30076.

System/Programmer Analysts, Software/Project Engineers or other IT professionals wanted by Imetris, an e-business solutions provider. MS/BS (or equiv) required. Skills in Oracle, SQL, Java, SAP, PeopleSoft, ERP tools preferred. Competitive wages. Please contact info@imetris.com. EOE.

Advansoft (dba Soft O Soft) is looking for program or system analysts, Project/IT engineers. Candidate must have BS or equivalent. Exp. in IT area such as Oracle, Java, VB, C/C++, DB2, WebSphere/Weblogic etc is plus. Some positions may require travel. info@advansoft.com. EOE.

SBI is looking for the following positions for its offices in Houston, TX, San Francisco, CA, Warren, NJ, Salt Lake City, UT and Portland, OR: Art Director, Web Designer, Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Software Developers, SAP Consultant, resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway, Suite 480, Salt Lake City, UT 84121: careers@sbiandcompany.com; Fax (801) 733-3201.

Software Engineers: Analyze, design, develop & deploy apps. in SAP R/3 Modules (MM, SD, WM, PP, PM, FICO & HR) and related technologies (ABAP/4, ALE, EDI, IDOCS, ITS), SAP BW, Oracle, SQL Server and Visual Basic. Send resume to HR, InfoWeb Systems, Inc., 3435 Asbury Road, Suite 175, Dubuque, IA 52002. EOE.



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Programmers, Software Engineers & DBAs: (a) Design, develop, upgrade & maintain complex database in Sybase, SQL Server, Oracle, Sybase Rep Server, SQL Server 2000, Oracle 9i, Oracle & SQL Server Enterprise Manager, ErWin, ANSI SQL, TSQL & other rel. tech.; (b) Analyze, design, develop & maintain specialized software apps. in Oracle Financial Services Applications Suite including Oracle Discoverer, Financial Analyzer, Sales Analyzer, Express Server (OLAP) & Warehouse Builder, AIM, Cobol, Dbase, FoxBase & other rel. tech. Prevailing wage/benefits. Send resume to Attn: HR, 3651 Peachtree Pkwy., Suite E370, Suwanee, GA 30024. EOE.

DBAs: Design, develop, upgrade, maintain and administrator complex databases in Oracle, Oracle Apps., MS SQL Server, Oracle 8i, Sun Enterprise and related technologies on various OS - Linux, Sun Solaris, IBM AIX, etc. Prevailing wage/benefits. Send resume to Attn: HR, 295 Henley Place, Duluth, GA 30097. EOE.

Senior Programming Analyst-40 hrs/wk 9-5. Comp. Salary Offered, in Weston, FL. Req. Bachelor's Degree or Equivalent in Computer Information Systems + 1 yr. exp. in job offered-Analyzing the computer system requirements & conducting designing, coding & implementation of technical solutions to fulfill requirements; creating & maintaining Visual Basic, SQL Access and web based applications, etc. Send resume to Bill Anderson, CHCS Services, Inc., 3050 Universal Blvd., #150, Weston, FL 33331.

Software Engineer wanted to design, develop, modify and maintain e-procurement solutions, and perform related duties. Master in Computer Science and related experience required. Send resume to ICS, 349 Lafe Cox Drive, P.O. Box 3298, Johnson City, TN 37602.

Senior Mechanical Engineer. Design, implement and develop the mechanical aspects of servowriters. Use thorough understanding of hard disk drive mechanics and environmental system interactions during servo track writing production process. Work closely with development group to translate Server Product Group servowriter essentials into design (this requirement is specific to this position because the core technology division is located in Longmont, Colorado). Technical information must be communicated efficiently with a thorough and clear understanding. Design electromechanical components for precision mechanisms. Use PRO/E CAD system Pro/PDM file management and geometric tolerancing. Work cross-functionally with other groups such as electrical, servo, and reliability, as well as the servowriter development group. Requirements include a Master's degree or equivalent in Mechanical Engineering, Electrical Engineering or closely related field and four years of work experience with hard disk drive servowriters, including precision mechanism design and hard disk drive instrumentation. Requires approximately 5% domestic travel. Applicants must have unrestricted authorization to work in the United States. Salary $65,000/year. 40 hours/wk. Respond with two copies of resume to Case #200203493, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Network Support Analyst I: Entry-level position to provide technical assistance for LAN & WAN installation & implementation of Cisco products & network cabling. No exp. and college degree req. but must demonstrate ability to perform job through at least either course works or certificates in LAN/WAN & Cisco Products. 40 hr/wk. Resume w/transcripts/certificates to D. Greenwood, Metro Brokers, Inc. 5775-D Glenridge Dr. Ste 200, Atlanta, GA 30328

System Engineer for h/care s/ware co in NY, NY. Must have bach degree any field & 3 yrs exp. Send resume to: CureMD, 1181 Broadway, 6th Fl, NY, NY 10001.

Programmer Analyst

Job Type: Full Time
Company Name: MAXIL Technology Solutions Inc.

Duties: Analyze, design, and develop cross platform applications in Enterprise level Object Oriented Technologies. 3-4 years of experience in Object oriented technologies on Java/C++, JSP 1.2, Servlets 2.3, XML1.0, and EJB 1.2. Should be proficient with design and development tools like TogetherJ, Jbuilder 8.0 and application servers Weblogic Application Server 8.1 and websphere. Also act as a Web server Admin, deploy and maintain applications on Weblogic Application Server 8.1 running on Solaris. Extensive experience in CRM/Financial/Billing/Telecom preferred. Good exposure to Data Mapping tools especially Informatica PowerCenter is desired. Proficient working on Windows NT and Solaris operating Systems is preferred. A strong SQL skill with Shell scripting experience is desired. Excellent knowledge of Oracle 9i and Teradata V2R5 required. Good financial industry knowledge especially protocols FIX, SWIFT and knowledge of Mutual Funds, Commingled Funds, Fixed Investment Instruments desired.

Education & Experience: Bachelors/Masters in Engineering with 3-5 years of Industrial Experience. Experience in CRM applications/financial industry experience using C++ (COM+, ATL, STL, CORBA) or Java (Swing, J2EE) strongly desired. Experience in financial industry is prefered.

Contact: resumes@maxil technology.com

SR. INFO SYSTEMS ADMINISTRATOR. Lead maintenance, installation, configuration, & monitoring of co. network infrastructure (hardware & software), internet data center (Exchange Server 5.5,Proxy Server), product development (NetObjects Fusion MX), QA & testing, DNS/DHCP servers, ascend pipefine routers, & firewalls; ensure tools are identified, deployed & operational for event monitoring & response in production system environment; ensure remedial action is taken to correct hardware/software exceptions; develop procedures for, supervise & train support team of 3 to serve as backups for support desk; create & analyze IT Disaster Recovery Plan (Veritas Backup 7.0); handle end-user problems/questions & train; write reports for Inventory Control using Java & VB. Requirements: Bach. in Comp. Sci. or related field PLUS 1 yr. exp. in job or 1 yr. as Info Systems Administrator using Veritas Backup 7.0, Microsoft Exchange 5.5, Microsoft Proxy Server, Net Objects Fusion MX, Java/VB. Send CV to Dorian Tool International, Attn: HR, 615 County Rd 219, East Bernard, TX 77435. Fax: (979) 282-7006 or HR@Doriantool.com.

Architect to lead application architecture & operational deployment processes to ensure efficient use of system resources & meet service level agreements for performance/availability. Will engage in Grid Computing (research/evaluation of emerging concept/technology). Server Consolidation (evaluating resource management tools: ThinkDynamics) & Autonomic Computing. Research & recommend application of appropriate standards, methods, vendor products, tools & technologies. I.d. best practices & technology & recommend process improvement strategy; provide expert tech leadership & coach/mentor team members to enhance their tech & architectural knowledge; serve as expert tech consultant & provide tech leadership to snr management, project team members & functional organizations. Devlpmnt environments incl Solaris, AIX, Linux, Windows NT/2000/XP. J2EE/Websphere, .NET, ORacle, DB2, SANs, clustering, system & network management, TCP/IP, http, SSL, XML, SOAP, MQSeries, TIBCo. Will also research & advise on appropriate performance & monitoring tools incl Mercury Loadrunnner, Radview WebLoad, BMC Perform/Predict, Teamquest & Rational Performance Studio. No degree required. Candidate must have 5 yrs exper in Job Offered or 5 yrs in software architecture & development, incl 2 yrs in project management. Cand must also possess demonstrated expertise in the following: (1) architecture & performance characterization of enterprise/OLTP financial services applications - incl J2EE application servers, mainframe applications & rational databases; (2) in performing component level performance characterization of financial serves applications, incl J2EE, .NET performance analysis & framework compliance & architecture; & (3) in characterizing high availability networks & network application profiling & management, incl performance management & security. Sal: $97,825/yr. M-F, 9A-5P. Submit 2 copies of resume to Case # 200203508, Labor Exchange Office, 19 Staniford St., 1st fl, Boston, MA 02114. EOE. Applicants must be U.S. workers eligible to accept full-time employment in U.S.

Teacher, Comp. Sci. sought by Computer School for post-sec. students. Must have Bach. in C.S. or C.E. plus 1 yr. teaching or comp. industry exp. Send resume to The Boston Computer School, 11 Wadsworth Way, Sharon, MA 02067.

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ENGINEER-NETWORK ENGINEERING. Analyze, research, design and develop solutions for the provisioning aspects of complex high capacity circuits used in the planning and allocation of telecom infrastructure facilities for urban and suburban central offices; identify and recommend enhancements to high capacity circuit provisioning processes and procedures; perform web programming, develop web-based reports and publish ongoing results; coordinate functions between mechanized systems and input relationships; consult with internal subject matter experts and external vendors to provide on-going improvements and report documentation, definitions, and methods and procedures associated with high capacity circuit provisioning processes. Requires Bachelors degree in Electronic or Electrical Engineering plus 2 years exp. in the job offered or 2 years exp. in utilizing complex high capacity circuit provisioning processes and procedures in the planning and allocation of telecom infrastructure facilities for urban and suburban central offices. Salary $62,400/yr. 40 hrs/wk; Mon-Fri 8AM-5PM. Job is located in Manchester, NH. To apply, send two (2) copies of resume/letter of application to Job Order #2003-631, P.O. Box 989, Concord, NH 03302-0989.

Manager, Corporate Development: Blackbaud, Inc., the leader in bringing technology to nonprofit organizations and educational institutions, is seeking a Manager, Corporate Development to identify and evaluate new opportunities for expanding or diversifying existing software and services business to identify specific client product and service needs for past, current and prospective customers. The candidate will conduct qualitative research (industry and client interviews) and quantitative analysis, such as advanced financial and operating models, market opportunities and short- and long-term projections. The candidate will forecast financial and operational performance of acquisition candidates and partnerships. Position requires M.B.A. in Business, Finance or related field as well as two years experience (pre- or post-MBA) as a Business Associate or Business Analyst. Experience must include advanced financial modeling. Interested applicants should email their resumes to recruiting@blackbaud.com with the subject line "Manager, Corp Dev." EOE.

SR. PROGRAMMER/ANALYST

Analysis and design of Oracle database using UML, OOAD and Rational Rose methodologies and implementing business rules using stored Procedures and triggers. Migrating part of business logic from stored Procedures in Oracle database to Delphi. Application development using Borland Delphi and Empower. Generating technical reports using Crystal Reports. Developing web and distributed applications using Java, J2EE, SOAP, Webservices, UDDI, WSDL, Struts, XML, XSL, CSS, HTML, UNIX, JSP, Websphere and Weblogic technologies. Developing windows based applications using C++, VC++ and VB in Windows2000 and Windows NT platforms. Writing SQL, PL/SQL and dynamic SQL Statements in Oracle, SQL server and Informix databases. 8:00 a.m. to 5:00 p.m., 40 hrs/wk, $55,000/year. Bachelor's degree in Computer Science or Engineering. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 590 Iowa Street, Dubuque, IA 52004-0757. Please refer to Job Order #IA1101828. Employer paid advertisement.

Java Programmers

Conseco has positions for programmers to plan, develop, test, and document computer programs, applying knowledge of programming techniques and computer systems for information systems department including testing, analyzing, programming, and documentation of code, and problem solving, interfacing to a variety of systems including mainframe, UNIX, and client server applications and using Java, WebSphere, JSP, BJB, JDBC, Microsoft Office applications, UNIX/AIX, SQL, and File Transfer Protocols, creating servlets to interact with MQ Series platforms MDp clips on MainFrames and Oracle databases on UNIX systems. Candidates must have a bachelor's degree in computer science or related field. Candidates must be authorized to work permanently in the United States. Please send resume to: Bernard Hodes Group Reply Service, #81943, 8440 Woodfield Crossing, Suite 290 Indianapolis, IN 46240. No phone calls, please. An equal opportunity employer

Smart IMS, growing Software Consulting & Development Company is looking for Computer Professionals with MS/BS in computers or related with at least 2 to 4 years experience in applications Development Experience with the following skills or a combination thereof: VB, ASP, Microsoft Technologies (ASP.Net, VB.Net, C#), XML, XSL, Java,JSP,J2EE, Business Objects, COM/DCOM, Lotus Domino, RUP,Rational Suite Test Director, Winrunner, Informix, Oracle 8i, DB2, Unix Korn Shell Scripting, Solaris,UNIX, Windows NT/2000, MVS, Software Testing Methodologies, iPlanet, Apache Web Sphere and Weblogic (Portals and Application Servers). Must be willing to travel/relocate to different client sites throughout the United States. Please email Resumes to jobs@smartims.com or mail to Smart IMS Inc., 3221 DeCoursey Ave, Covington, KY 41015.

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Senior Staff Embedded Software Engineer - Development - Req. Master's degree or higher (or equiv. foreign educ.) in Electrical or Electronics Eng. & 3 years' exp. in the job offered or 3 years' exp. in testing & troubleshooting of MPEG encoding & decoding software on a driver level. All stated experience must include each of the following: sustaining DMA driver software; testing of set-top drivers on SPARC-based, multimedia RTOS-driven systems; & testing of real-time embedded multimedia operating systems including QAM & QPSK in a broadband network. Lead conceptualization, definition, & design of Digital Video Audio Decoder drivers to accommodate and resolve issues identified through testing & troubleshooting of MPEG encoding & decoding software on a driver level. 40 hrs./wk. 8:00 a.m.-5:00 p.m. Apply with resume to: Scientific-Atlanta, Inc., c/o: Ellen Queen, 5030 Sugarloaf Parkway, Lawrenceville, GA 30042. Please reference job #7500.

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Senior Consultant. Software analysis & development for business processes. Technical Environment: Java, XML: XSLT, Oracle, EJB, Websphere, WSAD, DB2, JMS, Rational Rose. Bachelor's degree in Comp. Sci. or Eng.* + 2 yrs exp in job offered or as Software Consultant. Technical Integration Expert, or Programmer Analyst req'd. (*Bachelor's degree in any engineering field also acceptable). Previous exp must include: Java, XML, Oracle. 40 hrs/wk, $66,000/yr. Must have proof of legal authority to work in the US. Send resume to Iowa Workforce Center, 215 Watson Powell Jr Way, Des Moines, IA 50309-1727. Refer to JO#: IA1101832. Employer pd ad.

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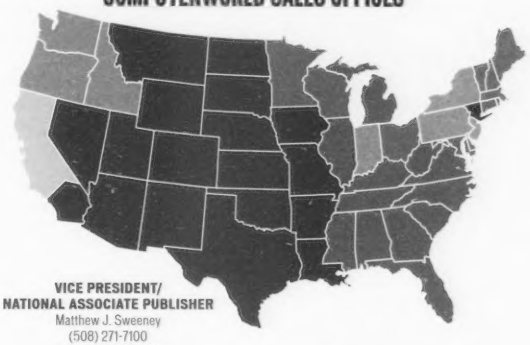
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Merrill Lynch

But the idea is to add a layer of abstraction that creates one logical storage fabric, with numerous virtual SANs dedicated to individual business units.

That would let the business units share storage resources, "but not have one SAN that's impacting all the other SANs," Myrick said. In addition, storage administrators could make changes to one of the logical zones in the SAN infrastructure without affecting the performance and reliability of the others, he said.

Colin Gibson, who's in charge of infrastructure and data services at Merrill Lynch, said the storage pooling enabled by the virtualization plan could also help ensure that the company's disk arrays aren't sitting idly if users don't need the full capacity assigned to them. "We run at a high utilization rate now, but we could run even higher," Gibson said. "We want to consistently be at 90%. That's a good number to be at, because it doesn't allow assets on the floor to remain unused."

Myrick and Gibson said plans for the SAN virtualization project likely will be solidified by year's end. They declined to comment on the expected cost, other than to say it would run into the millions of dollars.

Data security concerns will be a high priority, they noted. Merrill Lynch currently has 500TB of storage capacity spread across 16 SANs at several data centers in the New York/New Jersey region. Once the SANs can share data through the switches, business units will have to be restricted from seeing one another's data. "We'll be very selective with the [data] we're putting across the virtual SAN," Myrick said.

Merrill Lynch is "far ahead" of most users in addressing SAN consolidation, said Steve Duplessie, an analyst at Enterprise Storage Group Inc. in Milford, Mass. But, he added, many large companies are running into the same problems that Merrill Lynch is — the number of SANs they have installed is growing out of control, and performance and resource utilization rates are taking a hit.

"Twenty years ago, you had the same problem with LANs," Duplessie said. "You had all these little workgroup LANs that needed to be combined."

Merrill Lynch's SAN Installation Includes:

- About 500TB of capacity on 16 SANs in multiple data centers.
- A combined total of 61 Brocade SilkWorm 12000 switches.
- More than 1,500 switch ports on some of the larger SANs.

Now, he added, IT managers "need one big SAN that they can manage as microscopically as they can, as opposed to a bunch of little SANs."

Merrill Lynch primarily uses director-class storage switches made by Brocade Communications Systems Inc., and Myrick said he would like to stick with the San Jose-based vendor. But Brocade has yet to build an intelligent switch that supports data routing between servers on different SANs. That's one reason Merrill Lynch is biding its time, Myrick said. Funding issues are another.

"We're really looking to vendors to supply us with solutions that will be reliable, fault-tolerant and resilient and will work on the scale we need them to work," Myrick said.

Merrill Lynch is also exploring the idea of deploying information life-cycle management tools. Ultimately, Myrick said he would like to be able to have systems fail-over between the company's two main data centers so that both can function as disaster recovery sites. **44125**

Correction

The last name of John Matelski, deputy CIO for the city of Orlando and a member of the Quest user group's board, was misspelled in a story that began on Page One in last week's issue ("PeopleSoft at Odds With J.D. Edwards User Group").

MORE THIS ISSUE

Three case studies show how a unified view of storage resources can reduce application downtime and save money. PAGE 27

Faster Storage Devices Coming, but Not for All

Server bottlenecks could limit Fibre Channel performance for some users

BY LUCAS MEARIAN

A VARIETY OF storage vendors are testing products that could double the throughput of Fibre Channel storage-area networks (SAN) and network-attached storage (NAS) devices from the current 2Gbit/sec. rate.

The faster 4Gbit/sec. standard was approved in June by the Fibre Channel Industry Association, but vendors waited to develop the technology because of a slumping market. Now, makers of Fibre Channel host bus adapters (HBA), switches and disk drives say that devices adhering to the new standard are on the horizon and will cost roughly the same as or a little more than 2Gbit/sec. hardware.

Some vendors are also looking to release products with 10Gbit/sec. capabilities. But some IT managers last week said they may not be able to benefit from the Fibre Channel performance boosts at this point because of server and tape drive I/O bottlenecks.

Gary Pilafas, senior storage and systems architect at UAL Loyalty Services Inc. in Arlington Heights, Ill., said that even if 4Gbit/sec. products cost no more than his existing ones, he's wary about installing them on his SAN. The application servers that the United Air Lines Inc. subsidiary backs up across its Fibre Channel network couldn't take advantage of the faster network speeds, said Pilafas.

"You'd saturate your [server] host bus long before you'd saturate a 1- or 2Gbit connection," Pilafas said. UAL could use the speedier throughput only if he connected its Hitachi Data Systems Corp. disk arrays directly to its Storage Technology Corp. tape library, he added. But StorageTek has yet to announce support for 4Gbit/sec. Fibre Channel.

Another IT manager, who works at a large Midwestern insurance company and asked not to be identified, also said that replacing 2Gbit/sec. Fibre Channel equipment with 4Gbit/sec. devices isn't an attractive option now. "If a tape drive can only produce 20MB/sec. throughput, doubling the speed of the Fibre Channel port the tape drive is connected to doesn't increase the throughput," he said.

Steve Kenniston, an analyst at Enterprise Storage Group Inc. in Milford, Mass., said the move from 2Gbit/sec. Fibre Channel to 4Gbit/sec. is comparable to the jump from Intel Corp.'s Pentium III processors to the Pentium 4 line. Migrating to 10Gbit/sec. products would be "a quantum leap" for users, he added.

San Jose-based Hitachi Global Storage Technologies Inc. this month announced plans to begin joint testing of 4Gbit/sec. disk drives with storage vendors and added that it expects those devices to be generally available by 2005.

Vendors such as Brocade Communications Systems Inc. and McData Corp. have said they plan to offer devices supporting the faster speeds later this year or in 2005 (see box). However, some companies remain cautious about supporting the new technology.

For example, a spokesman for Cisco Systems Inc. said it has no immediate plans to support 4Gbit Fibre Channel in its SAN switch portfolio. He added that Cisco could add 4Gbit/sec. capabilities "if strong market demand requires us to do so." **44043**

UPCOMING PRODUCTS

BROCADE: Plans to begin testing **4Gbit/sec. and 10Gbit/sec. switches** with makers of storage devices in 2005.

McDATA: Is developing **4Gbit/sec. director-class switches** for release in 2005.

ADVANCED DIGITAL INFORMATION CORP.: Will begin offering **tape libraries with 4Gbit/sec. technology** by year's end.

QLOGIC CORP.: Expects by midyear to ship **4Gbit/sec. HBAs, plus switches** supporting that rate as well as 10Gbit/sec.

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BPA ABM

FRANK HAYES ■ FRANKLY SPEAKING

Save the Coders

IF YOU HAD ANY DOUBTS about the effects of offshoring on IT pay, you can stop doubting. According to a January report from Foote Partners, the bonuses that programmers once received for specialized knowledge are evaporating — off 25% over the past two years and still sinking. Yes, things are tough all over, but the numbers for application development are much worse than the average for IT specialties — and the app dev falloff coincides with the uptick in offshore outsourcing of many software projects. For programmers, it's starting to look like the end for big paydays — and maybe for any paydays at all.

Of course, hot IT specialties come and go. The Foote Partners survey says bonuses are going up for skills in Linux, WebSphere, Gigabit Ethernet, voice over IP and XML. Security and project management look strong, too. For IT workers who want to chase a new specialty that's on the rise, those are the categories where training and certification will pay off.

But not programming. Not even specialties like rapid application development and extreme programming, which have been hot stuff in recent years. Now they're cooling off, according to the Foote survey.

It's a matter of supply and demand. There are lots of programmers out there — and with offshoring, "out there" gets bigger every day. With that much supply, programming skills can't command the extra money they once did. They're a commodity, and they're likely to keep getting cheaper.

If you're a programmer, that should make you worried.

If you're an IT manager, you should be worried, too. On the one hand, you can't afford to keep a lot of expensive commodity programmers on staff. On the other, some of those programmers know your systems — and your business — intimately. And that knowledge can make a huge difference in the business value your IT shop can deliver. It's an asset you can ill afford to lose.

But as long as you keep defining what those programmers do in terms of purely technical skills, there's no business justification for keeping them around.

That means it's time to start redefining your programmers.

Not just renaming them all as "analysts," or prettying up their job descriptions with businessy jargon. But actually redefining what they do in the context of your business organization.

You can't afford programmers who are just good at writing code. What you want your programmers to do is to understand your business processes — and how to use software to automate, streamline and even revolutionize those processes.

Nothing commodity about that, is there? It's specific to your business organization, and it's right in line with the IT department's core value proposition of using technology to help the business run better. It's the high-value part of programming.

You can afford to keep programmers like that. In fact, you can't afford *not* to keep them.

Will that redefinition of the programmer's job leave more than a few of your programmers behind? Sure. Some will lack the ability to think in business terms. Others simply won't want to — they just love coding and aren't interested in business processes. You'll lose those people. You were bound to lose them anyway, as their work turned into a commodity.

But the ones who make the cut will be perfectly positioned to let your IT shop deliver real value to your company — and make the business more efficient and effective.

And they'll serve as the model for how you'll deal with the next wave of technology that gets commoditized and offshored — and how you can turn the next group of pure techies you can't afford to keep into business technologists you can't afford to lose.

And on payday, you *and* your IT staffers will have a lot less reason to be worried. 44082



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com**.

That Should Speed Things Up

Newly hired programmer pilot fish at this small insurance company can't help noticing the behavior of his programmer co-worker. Not only does the co-worker keep odd hours; he often doesn't show up for work at all. Result: Co-worker has a project that looks like it will take twice as long as it should to complete. Why is he allowed to get away with this? baffled fish asks boss. "He's not," boss says. "I've told him that as soon as he's finished with the project he's working on, he's fired."

SHARK TANK

Just Like The Boss

Only the CEO at this financially struggling company uses a BlackBerry, says the IT pilot fish who supports it. But the VP of IT insists he needs one too – "to use on a regular basis" and so he can back up fish in supporting the CEO. "So we spend hundreds of dollars to get him one and pay $100 a month for the voice and data plans that match his projected usage," says fish. After eight months, curious fish checks the invoices for the VP's BlackBerry service. "Grand total of use: three minutes," he sighs. "And that was from when I was testing the device before giving it to the VP."

A Little Too Resourceful

Consultant pilot fish and his team are working late one evening when everything stops. Their server has died – and it's behind two locked doors. While they wait for the system manager to arrive to restart the server, they find a key to the outer door. Then they jimmy the server room door with a knife, reboot the server themselves and call the manager to say he can return home. "At our next company meeting, the managers tell everyone how resourceful we were and call us up for a small award," fish reports. "We are each given a pair of handcuffs – and told, 'Good job, but don't do that again.' "

So Helpful

This company is switching VPNs, so the IT department sends an e-mail to users with a button indicating that clicking it will download an 8MB file. "I wanted to test this before I installed it on my home system," says IT pilot fish. "So I clicked, and without any user intervention, it installed itself and rebooted my PC." Which knocks out fish's existing network configuration. And uninstalling doesn't help. While reimaging fish's hard drive, tech admits this happened when the client software was tested, too. What if it does this to my home system? fish demands. "Oh, we don't support those," says tech. "You'll have to reinstall the whole OS yourself."

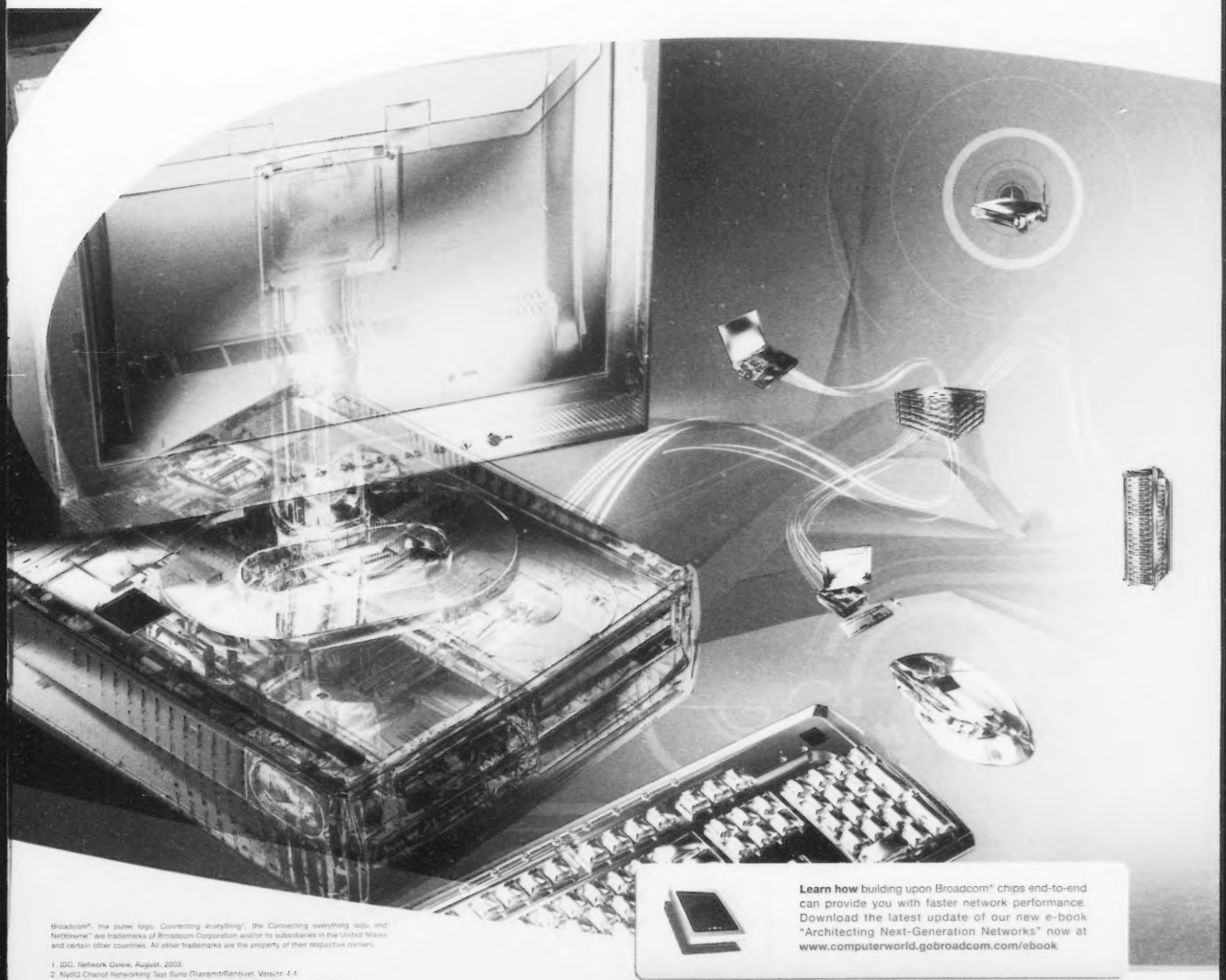
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1. IDC, Network Qview, August, 2003.
2. NetIQ Chariot Networking Test Suite (Transmit/Receive), Version 4.3. (Broadcom NetXtreme™ BCM5782/5705 GbE vs. Intel Pro 1000MT), September, 2003.

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